POWERED MIXER



SERVICE MANUAL



■ **CONTENTS**

PA 011358

YAMAHA CORP.
HAMAMATSU JAPAN
1.68K-814 D&H Printed in Japan '96.12

IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

WARNING: Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

IMPORTANT: This presentation or sale of this manual to any individual or firm does not constitute authorization, certification, recognition of any applicable technical capabilities, or establish a principal-agent relationship of any form.

The data provided is belived to be accurate and applicable to the unit(s) indicated on the cover. The research engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING: Static discharges can destroy expensive components. Discharge any static electricity you body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss.)

IMPORTANT: Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHAT SO EVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ WARNING

Components having special characteristics are marked ⚠ and must be replaced with parts having specification equal to those originally installed.

⚠印の商品は、安全を維持するために重要な部品です。交換する場合は、安全のため必ず指定の部品をご使用下さい。

■ SPECIFICATIONS

• General specifications

Maximum output power	200 W/4Ω @0.5% THD at 1 kHz	
Frequency response	20 Hz~20 kHz +1 dB, –3 dB @1 W output into 8Ω (POWER AMP OUT) 20 Hz~20 kHz +1 dB, –3 dB @+4 dB output into 10 kΩ (MAIN OUT, MONITOR OUT, EFFECT SEND)	
Total harmonic distortion	Less than 0.5% @20 Hz~20 kHz, 100 W output into 4Ω (POWER AMP OUT) Less than 0.2% @20 Hz~20 kHz, +14 dB output into 10 kΩ (MAIN OUT, MONITOR OUT, EFFECT SEND)	
Hum & noise (Average, Rs=150Ω) (with 20 Hz~20 kHz BPF)	–123 dB equivalent input noise, –65 dB residual output noise (POWER AMP OUT)	
	–88 dB residual output noise (MAIN OUT, MONITOR OUT, EFFECT SEND)	
	–79 dB (83 dB S/N) MAIN OUT, MONITOR OUT	Master level control at nominal level and all channel level controls at minimum.
	–69 dB (73 dB S/N) MAIN OUT, MONITOR OUT	Master level control at nominal level and 1 channel level control at nominal level.
	–75 dB (79 dB S/N) EFFECT SEND	Master level control at nominal level and all channel level controls at minimum.
	–69 dB (73 dB S/N) EFFECT SEND	Master level control at nominal level and 1 channel level control at nominal level.
	Hum & noise are measured with a –6 dB/octave filter (LPF) @12.7 kHz; equivalent to a 20 kHz filter with infinite dB/octave attenuation.	
Maximum voltage gain (PAD: OFF)	86 dB CH IN (Lo-Z) to POWER AMP OUT (CH1~4) 66 dB CH IN (Lo-Z) to MAIN OUT, MONITOR OUT (CH1~4) 72 dB CH IN (Lo-Z) to EFFECT OUT (CH1~4) 48 dB CH IN (Lo-Z) to REC OUT (CH1~4) 56 dB CH IN (Hi-Z) to MAIN OUT, MONITOR OUT (CH1~4) 26 dB AUX IN to MAIN OUT 22 dB TAPE IN to MAIN OUT 66 dB MIC IN to MAIN OUT, MONITOR OUT (CH5•6) 24 dB LINE IN to MAIN OUT, MONITOR OUT (CH5•6)	
Crosstalk at 1 kHz	65 dB adjacent input, 65 dB input to output	
Input channel equalization	±15 dB Maximum HIGH 12 kHz shelving MID 2.5 kHz peaking LOW 80 Hz shelving * Turn over/roll-off frequency of shelving: 3 dB below maximum variable level.	
Meters	5 POINTS LED METER (–10, –5, 0, +3, +6 dB)	
Graphic equalizer	7 bands (125, 250, 500, 1k, 2k, 4k, 8k Hz) ±12 dB Maximum	
Internal digital effect	3 types (Vocal, L Hall, S Hall)	
Phantom power	+48 V is supplied to electrically balanced inputs for powering condenser microphones via 6.8 kΩ current limiting/isolation resisters.	
Limiter	Comp. : THD≥0.5%	
LIMIT indicators	Turns on. : THD≥0.5%	
Foot switch	DIGITAL EFFECT MUTE : on/off	
Power requirement	USA and Canada 120 V AC 60 Hz Europe 230 V AC 50 Hz Other 240 V AC 50 Hz	
Power consumption	200 W	
Dimensions (WxHxD)	480×275×275 mm	
Weight	15 kg	

• Input specifications

Input connectors	PAD	Actual load impedance	Nominal impedance	Input level			Connector type
				Sensitivity[1]	Nominal level	Max. before cliping	
CH INPUT (Lo-Z) (CH1–4)	OFF	3 kΩ	50~600Ω Mics	–62 dB (616 µV)	–50 dB (2.45 mV)	–20 dB (77.5 mV)	XLR3-31 type
	ON		600Ω Lines	–32 dB (19.5 mV)	–20 dB (77.5 mV)	+10 dB (2.45 V)	
CH INPUT (Hi-Z) (CH1–4)	OFF	10 kΩ	50~600Ω Mics	–52 dB (1.95 mV)	–40 dB (7.75 mV)	–10 dB (245 mV)	Phone jack (TRS)
	ON		600Ω Lines	–22 dB (61.6 mV)	–10 dB (245 mV)	+20 dB (7.75 V)	
MIC INPUT (CH5•6)		3 kΩ	50~600Ω Mics	–62 dB (616 µV)	–50 dB (2.45 mV)	–20 dB (77.5 mV)	XLR3-31 type
LINE INPUT (CH5•6) (1, 2)		10 kΩ	600Ω Line	–22 dB (61.6 mV)	–10 dB (245 mV)	+20 dB (7.75 V)	Phone jack
TAPE IN (1, 2)		10 kΩ	600Ω Line	–20 dBV (100 mV)	–10 dBV (316 mV)	+17.8 dBV (7.75 V)	Phono jack
AUX IN		10 kΩ	600Ω Line	–22 dB (61.6 mV)	–10 dB (245 mV)	+20 dB (7.75 V)	Phone jack

1. Sensitivity is the lowest level that can produce an output of +4 dB (1.23 V) or the nominal output level when the unit is set at maximum gain. (All level controls are at maximum position.)

- CH INPUT and MIC INPUT connectors are balanced and others are unbalanced.
- 0 dB=0.775 Vrms, 0 dBV=1 Vrms.

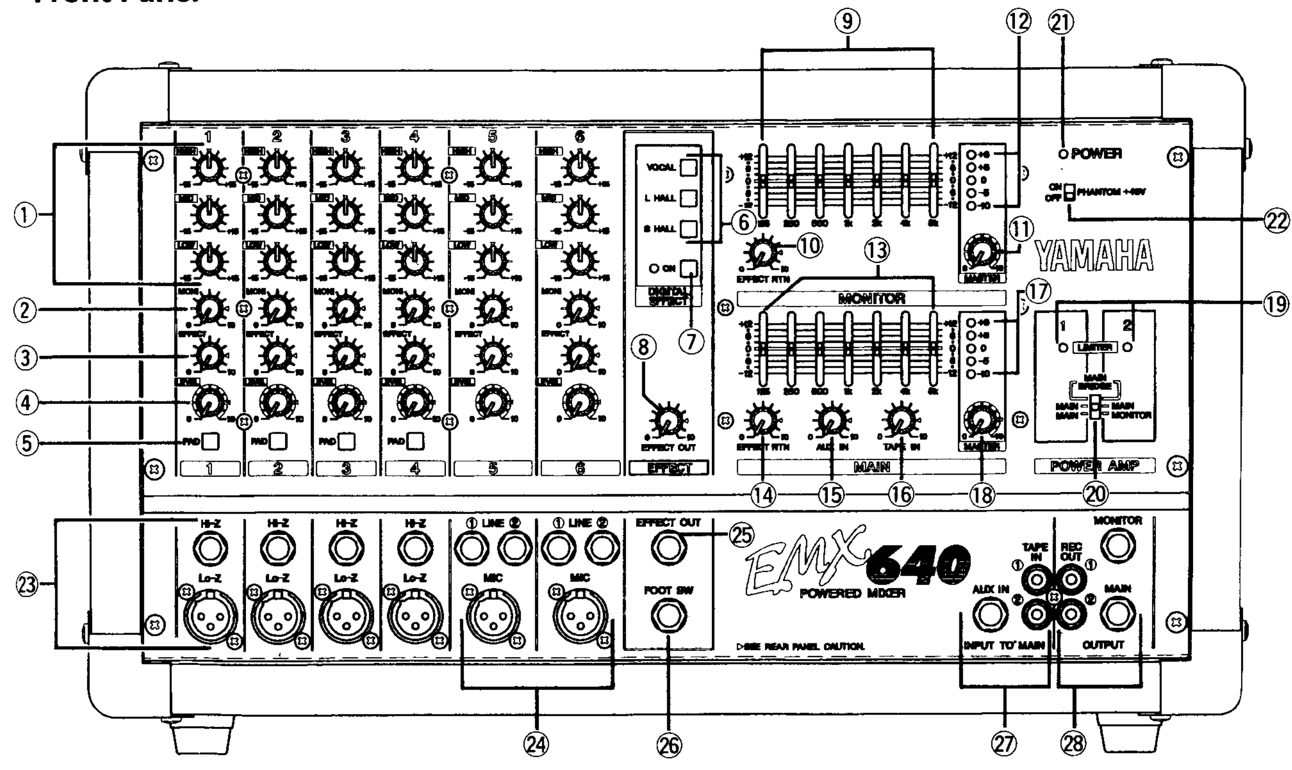
• Output specifications

Output connectors	Actual source impedance	Nominal impedance	Output level		Connector type
			Nominal	Max. before cliping	
POWER AMP OUT (1•2) (A, B)	0.1Ω	4/8Ω Speaker	37.7 W/4Ω	(200 W/4Ω)	Phone jack
BRIDGE OUT	0.1Ω	8Ω Speaker	75.4 W/8Ω	(400 W/8Ω)	Phone jack
MAIN OUT	600Ω	10 kΩ Lines	+4 dB (1.23 V)	+20 dB (7.75 V)	Phone jack
MONITOR OUT	600Ω	10 kΩ Lines	+4 dB (1.23 V)	+20 dB (7.75 V)	Phone jack
EFFECT OUT	600Ω	10 kΩ Lines	+4 dB (1.23 V)	+20 dB (7.75 V)	Phone jack
REC OUT (1, 2)	600Ω	10 kΩ Lines	–10 dBV (316 mV)	+10 dBV (3.16 V)	Phono jack

- All output jacks are unbalanced.
- 0 dB=0.775 Vrms, 0 dBV=1 Vrms.

■ PANEL LAYOUT

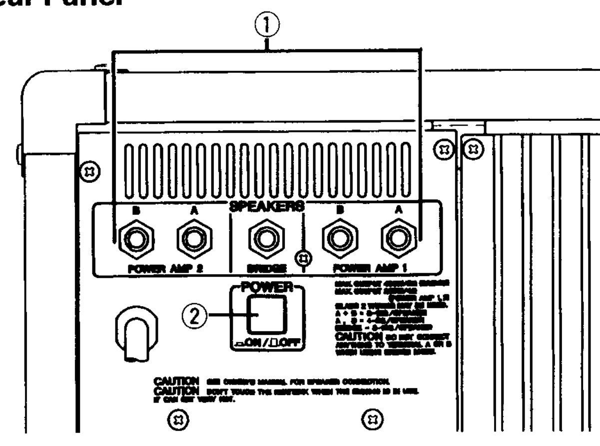
• Front Panel



① Equalizer controls (HIGH, MID, LOW)
② Monitor controls (MONI)
③ Effect control (EFFECT)
④ Level control (LEVEL)
⑤ Pad switch (PAD) (1~4 only)
⑥ Effect select switch
⑦ DIGITAL EFFECT ON switch
⑧ EFFECT OUT control
⑨ Graphic equalizer
⑩ EFFECT RTN control
⑪ MASTER control
⑫ Peak level indicator
⑬ Graphic equalizer
⑭ EFFECT RTN control
⑮ AUX IN control
⑯ TAPE IN
⑰ MASTER control
⑱ Peak level indicator
⑲ LIMITER indicator
⑳ Power amp select switch
- MAIN-MONITOR
- MAIN-MAIN
- MAIN-BRIDGE

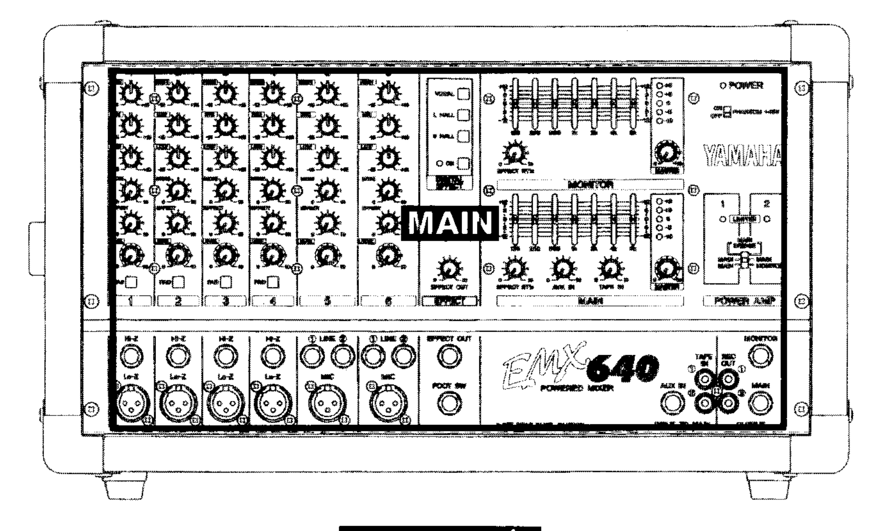
㉑ POWER indicator
㉒ PHANTOM +48 V switch
㉓ Channel input jacks (Hi-Z, Lo-z) 1~4
㉔ Channel input jacks (MIC/LINE) 5~6
㉕ Effect output jack (EFFECT OUT)
㉖ Foot switch jack (FOOT SW)
㉗ External input jacks (AUX IN/TAPE IN)
㉘ External output jacks (REC OUT/MONITOR/MAIN)

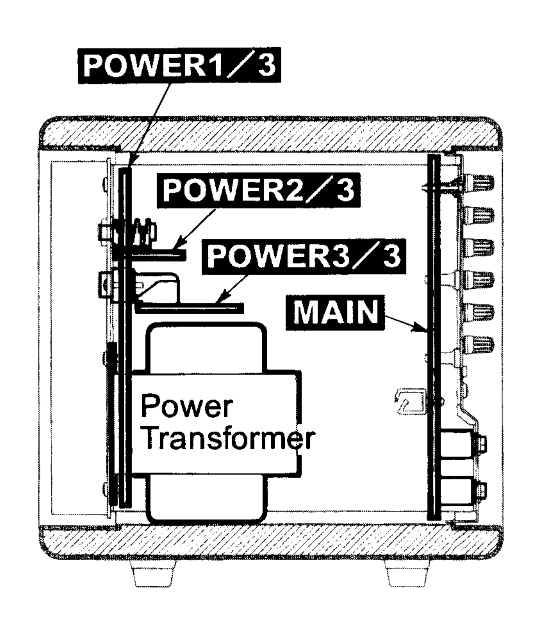
• Rear Panel

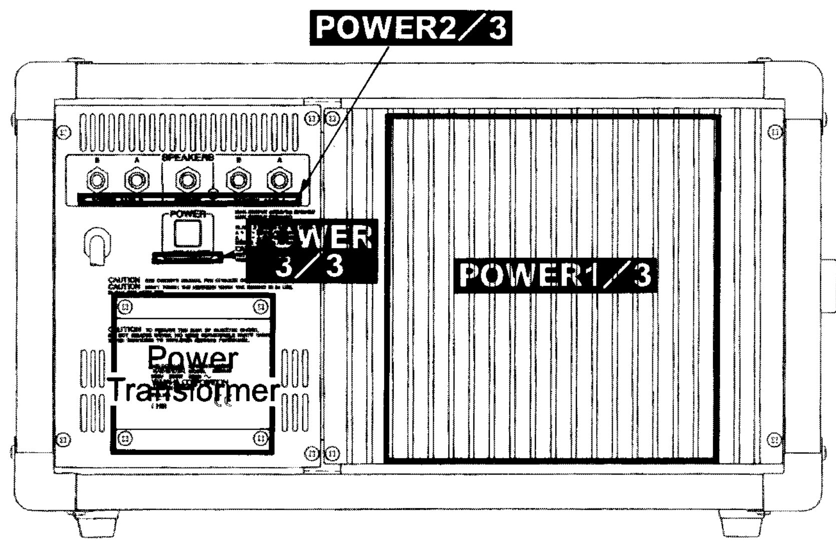


① Speaker output jacks (POWER AMP 1 A/B, POWER AMP 2 A/B, BRIDGE)
② Power switch

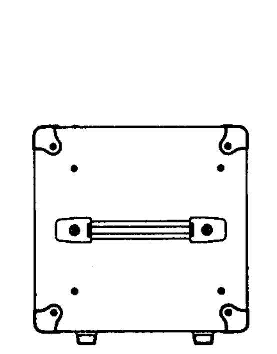
■ CIRCUIT BOARD LAYOUT

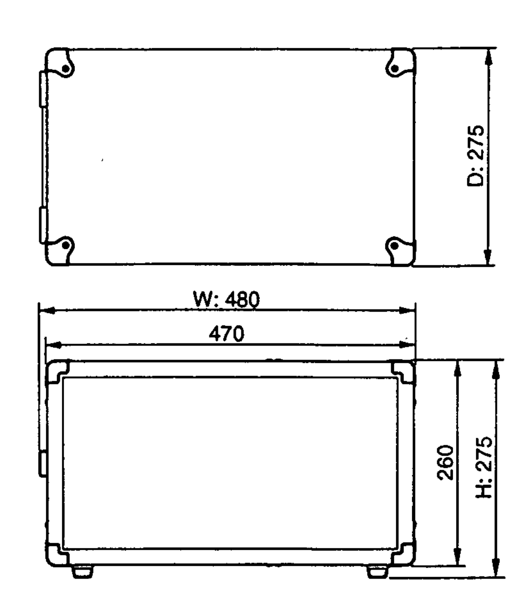






■ DIMENSIONS

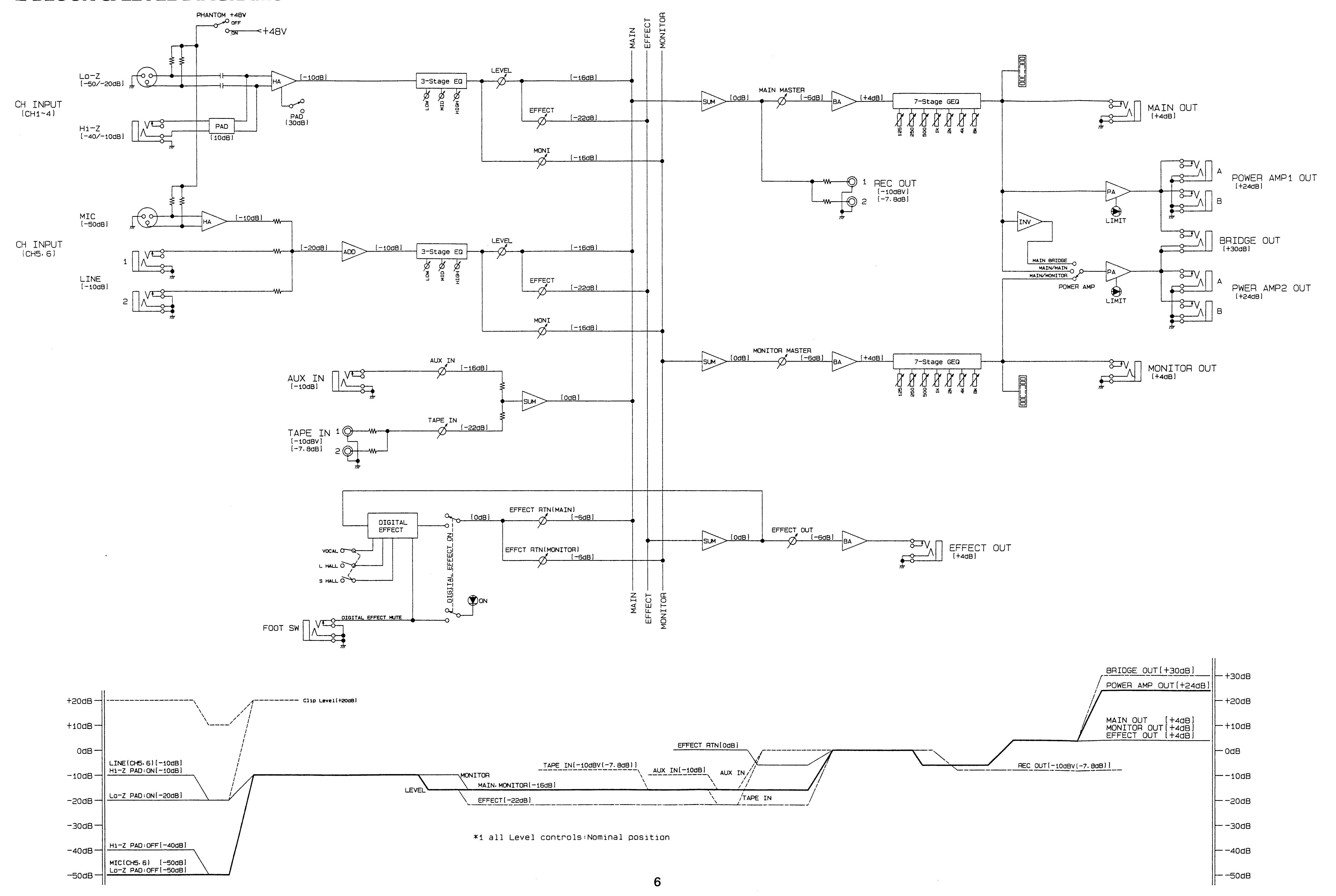




Unit: mm

EMX640

■ BLOCK & LEVEL DIAGRAMS



EMX640

■ DISASSEMBLY PROCEDURE

1. MAIN Circuit Board

1-1 Remove the six (6) screws marked [50] from front; remove the panel assembly. (Fig. 1)

1-2 Remove the forty-three (43) knobs, the thirteen (13) nuts marked [A] and the thirteen (13) screws marked [100A]. (Fig. 1)

1-3 Remove the twelve (12) screws marked [40]; remove the MAIN circuit board. (Fig. 1 and Fig. 2)

2 POWER 1/3 Circuit Board

2-1 Remove the four (4) screws marked [90A] from rear; remove the rear assembly 1/2. (Fig. 3)

2-2 Remove the fifteen (15) screws marked [70] and the four (4) screws marked [60]; remove the POWER 1/3 circuit board. (Fig. 4)

3 POWER 2/3 Circuit Board and POWER 3/3 Circuit Board

3-1 Remove the rear assembly 1/2. (See procedure 2-1)

3-2 Remove the four (4) screws marked [90B]; remove the rear assembly 2/2. (Fig. 3)

3-3 Remove the five (5) hexagonal nuts marked [B]; remove the POWER 2/3 circuit board. (Fig. 5)

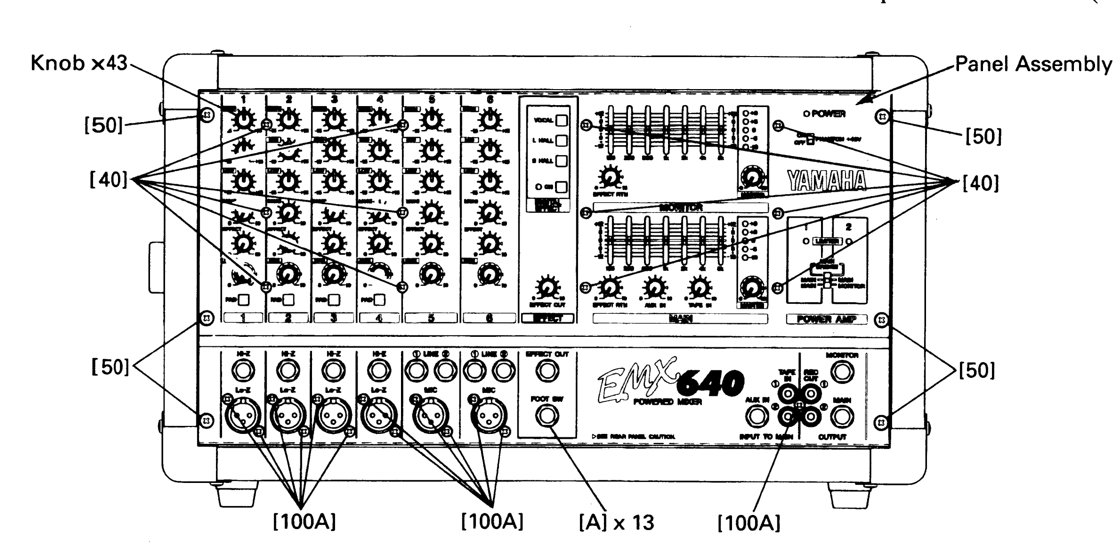
3-4 Remove the two (2) screws marked [100B]; remove the POWER 3/3 circuit board. (Fig. 5)

4 Power Transformer

4-1 Remove the rear assembly 1/2. (See procedure 2-1)

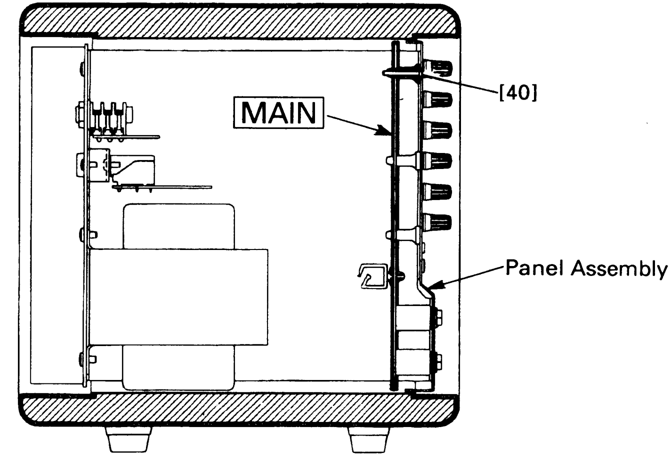
4-2 Remove the rear assembly 2/2. (See procedure 3-2)

4-3 Remove the four (4) screws [140]; remove the power transformer. (Fig. 5)



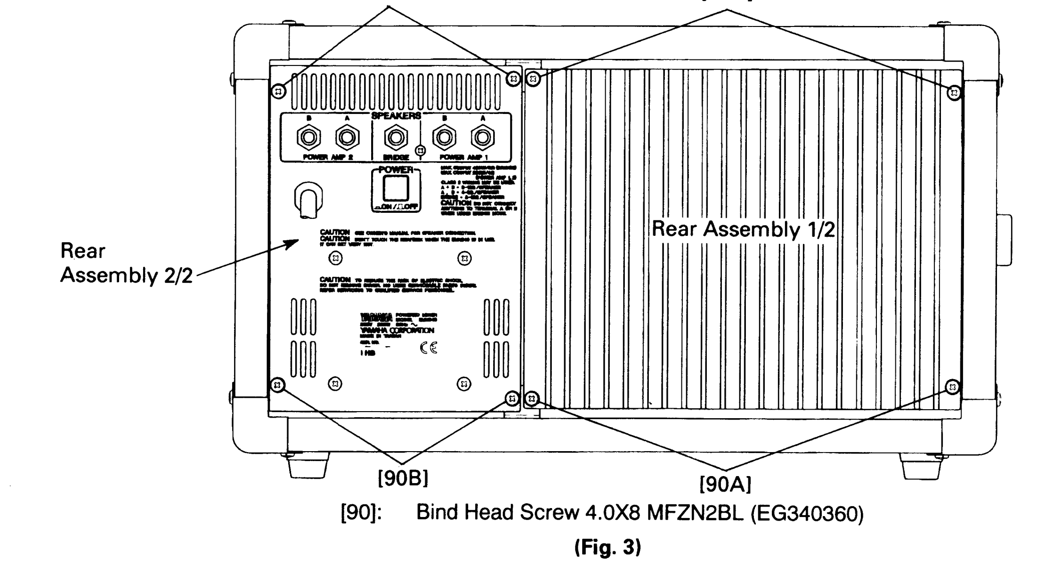
[A]: Hexagonal Nut
[40]: Flat Head Tapping Screw-B 3.0X25 MFZN2BL (VV095300)
[50]: Bind Head Screw 4.0X8 MFZN2BL (EG340360)
[100A]: Bonding Tapping Screw-B 3.0X8 MFZN2BL (VN413300)

(Fig. 1)



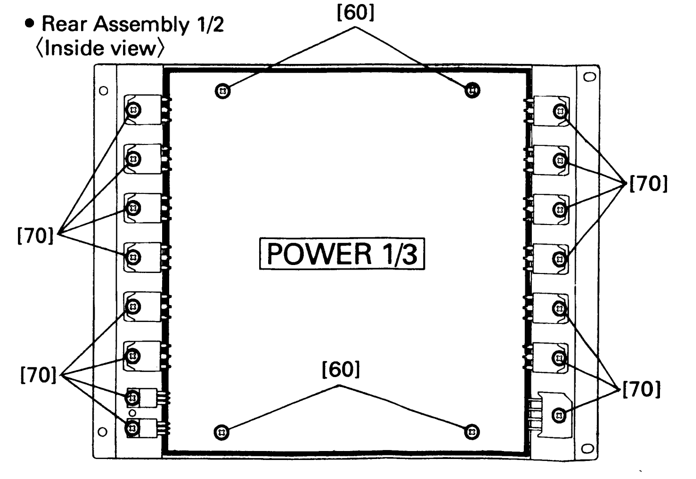
[40]: Flat Head Tapping Screw-B 3.0X25 MFZN2BL (VV095300)

(Fig. 2)



[90]: Bind Head Screw 4.0X8 MFZN2BL (EG340360)

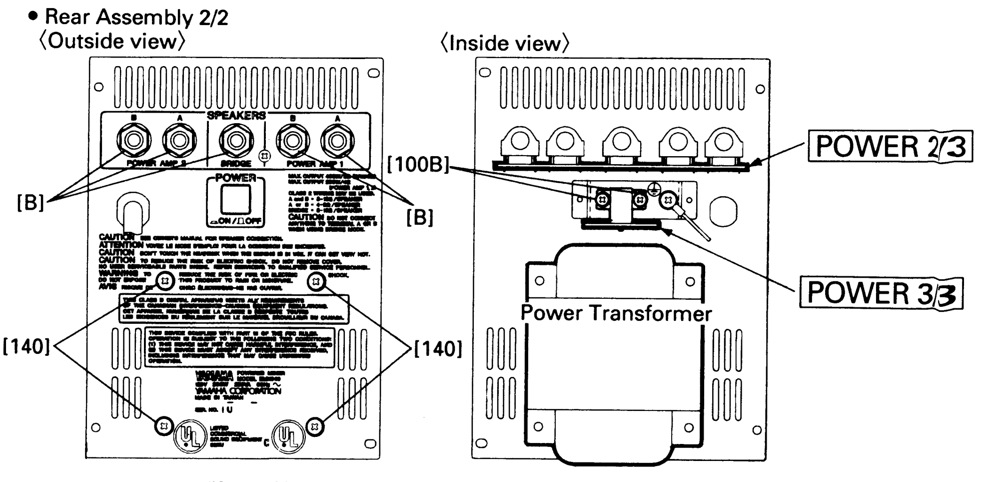
(Fig. 3)





[60]: Bind Head Screw SP 3.0X8 MFZN2Y (EG330290)
[70]: Bind Head Screw SP 3.0X12 MFZN2Y (VB763800)

(Fig. 4)



[B]: Hexagonal Nut
[100B]: Bonding Tapping Screw-B 3.0X8 MFZN2BL (VN413300)
[140]: Bind Head Tapping Screw-B 4.0X8 MFZN2BL (EG340190)

(Fig. 5)

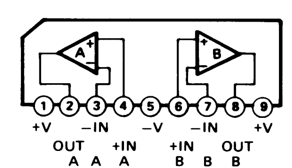
■ LSI PIN DESCRIPTION

• **YSS234** (XN299A00) Digital Sound Processor

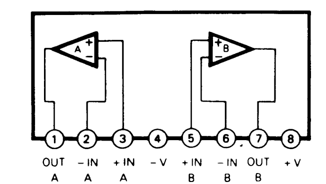
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	MD4	I/O		33	AVDD	-	DC A+5Vs bus
2	MD3	I/O		34	VDD	-	DC D+5V
3	MD0	I/O	External RAM interface data	35	TST0	-	DC D+5V
4	MD1	I/O		36	TST1	-	DC D+5V
5	MD2	I/O		37	DOEN	-	DC D+5V
6	MCKO	O	Master clock output	38	SDO1	O	N.C.
7	XO	O	Crystal oscillator connection	39	SDO0	O	N.C.
8	XI	I	Crystal oscillator connection	40	WC	O	N.C.
9	ER0	I		41	BCO	O	N.C
10	ER1	I	Eary refraction preset select	42	MA0	O	
11	ER2	I		43	MA1	O	
12	REV0	I		44	MA2	O	
13	REV1	I	Effect select	45	MA3	O	
14	REV2	I		46	MA4	O	
15	MUTEN	I	DC D+5V	47	MA5	O	External RAM interface address
16	ICN	I	Initial clear	48	MA6	O	
17	PRG	I	DC D+5V	49	MA7	O	
18	MODE	I	Preset mode (H=DC +5V)	50	MA12	O	
19	VSS	-	Ground	51	MA14	O	
20	AVSS	-	Ground	52	VSS	-	Ground
21	CVA	-	N.C.	53	MA10	O	
22	AORL	O	N.C.	54	MA011	O	
23	AORR	O	N.C.	55	MA09	O	External RAM interface address
24	CHL	I	Sample hold capacitor connection	56	MA8	O	
25	AIL	-	Lch ADC input	57	MA13	O	
26	VDD	-	DC D+5V	58	VDD	-	DC D+5V
27	AIR	I	Rch ADC input	59	WEN	I	Write enable
28	CHR	I	Sample hold capacitor connection	60	OEN	I	Output enable
29	AOFL	O	Lch DAC output	61	CEN	I	Chip select
30	AOFR	O	Rch DAC output	62	MD7	I/O	
31	AVDD	-	DC A+5V	63	MD6	I/O	External RAM interface data
32	CVB	I	Rch midpoint voltage	64	MD5	I/O	

■ IC BLOCK DIAGRAM

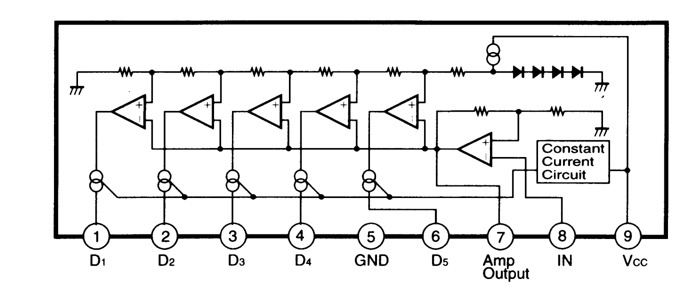
• **NJM2068L-D** (XM356A00)
Dual Operational Amplifier



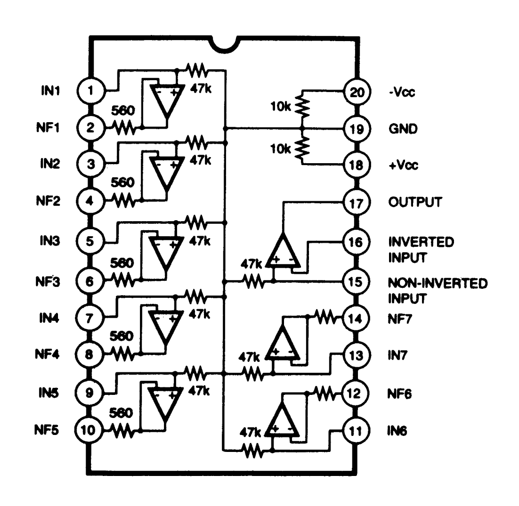
• **NJM2082L** (XN796A00)
• **NJM4558L** (XM922A00)
Dual Operational Amplifier



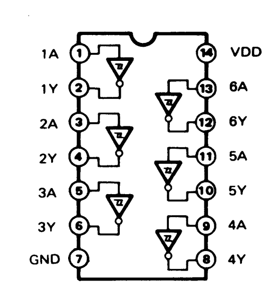
• **BA6137** (XA534A00)
LED Driver



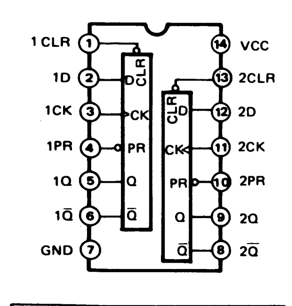
• **M5229P** (XG203A00)
7 SEGMENTS GRAPHIC EQUALIZER



• **TC74HC14AP** (IR001400)
Hex Inverter



• **TC74HC74AP** (IR007400)
Dual D-Type Flip-Flop

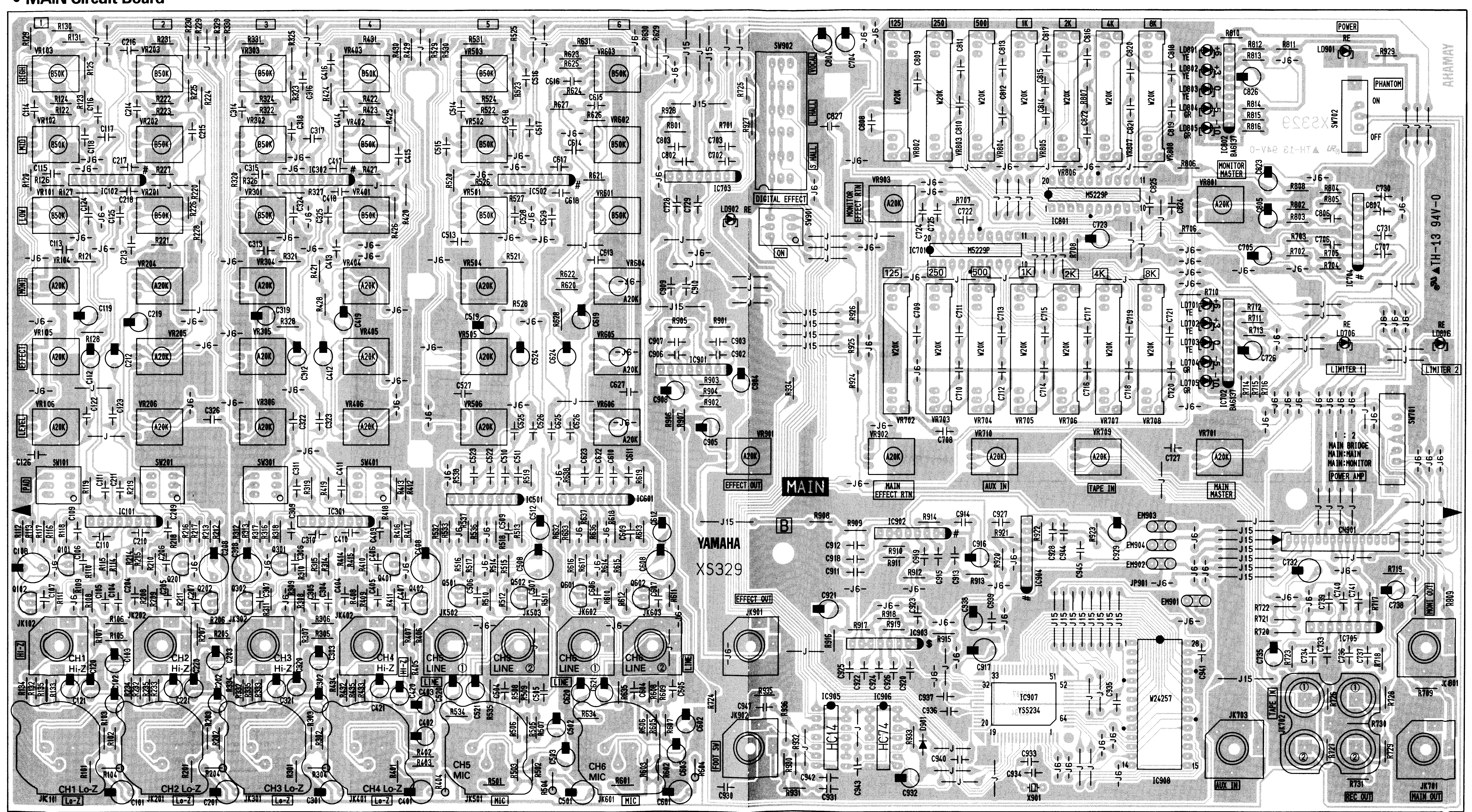


INPUTS				OUTPUTS	
PR	CLR	CLK	D	Q	Q̄
L	H	X	X	H	L
H	L	X	X	L	H
L	L	X	X	H	H
H	H	↑	H	H	L
H	H	↑	L	L	H
H	H	L	X	Q_0	$\bar{Q}_0$

EMX640

■ CIRCUIT BOARDS

• MAIN Circuit Board



Component side

Notes)
Circuit Board MAIN (VV084900) XS329B0

01. IC
- IC101,301,501,601, 703,705,901: NJM2068L-D (XM356A00) OP AMP
- IC102,302,502,704, 902,904: NJM4558L (XM922A00) OP AMP
- IC701,801: M5229P (XG203A00) GRAPHIC EQUALIZER
- IC702,802: BA6137 (XA534A00) LED DRIVER
- IC903: NJM2082L (XN796A00) OP AMP
- IC905: TC74HC14AP (IR001400) HEX INVERTER
- IC906: TC74HC74AP (IR007400) DFF
- IC907: YSS234(SP3) (XN299A00) DIGITAL SOUND PROCESSOR
- IC908: W24257-70LL (XQ696A00) SRAM

02. Transistor
- Q 101,102,201,202, 301,302,401,402, 501,502,601,602: 2SC2240 GR,BL (IC224030)

03. Diode
- D 901: 1SS133,176,HSS10 (VD631600)

04. LED
- LD 701-703, 801-803: LT331-41-C13 YE (VV938100)
- LD 704,705,804, 805: LT321-41-C13 GR (VV621000)
- LD 706,806,901, 902: LT311G-41-C13 RE (VV620800)

05. Mylar Capacitor
- C 113,213,313,413, 513,613,718,818, 911,914,923: 0.027 50V J (UA654270)
- C 114,214,314,414, 514,614: 5600P 50V J (UA353560)
- C 115,215,315,415, 515,615: 8200P 50V J (UA353820)
- C 116,216,316,416, 516,616,719,819, 928: 2200P 50V J (UA353220)
- C 709,809: 0.082 50V J (UA654820)
- C 711,811: 0.039 50V J (UA654390)
- C 713,813: 0.018 50V J (UA654180)
- C 714,814,927: 0.1 50V J (UA655100)
- C 715,815,913,922: 0.010 50V J (UA654100)
- C 716,816: 0.047 50V J (UA654470)
- C 717,817: 4700P 50V J (UA353470)
- C 720,820: 0.012 50V J (UA654120)
- C 721,821: 1200P 50V J (UA353120)
- C 912,915,924: 1500P 50V J (UA353150)
- C 936,937: 3300P 50V J (UA353330)

06. Monolithic Mylar Capacitor
- C 708,808: 0.82 50V J (VV064400)
- C 710,810: 0.47 50V J (VV064100)
- C 712,812: 0.22 50V J (VV321100)

07. Polypropylene Capacitor
- C 920: 100P 50V J (UA352100)

08. Ceramic Capacitor
- C 104-107,204-207, 304-307,404-407, 504-507,604-607, 722,822: 470P 50V K (FG612470)
- C 109-111,117,209-211,217,309-311, 317,409-411,417, 509-511,517,522, 609-611,617,622, 906,947: 100P 50V J (FG652100)
- C 118,218,318,418, 518,618: 27P 50V J (FG651270)
- C 122-125,322-325, 525-529,625,626, 724,725,728,729, 730,731,739,740, 824,825,909,910, 918,919,925,926, 944,945: 0.0100 50V Z (FG644100)
- C 126,326,527,627, 727,741,827,930,: 1000P 50V K (FG613100)
- C 523,623,737: 47P 50V J (FG651470)
- C 702,733,736,802, 902: 220P 50V J (FG652220)
- C 703,803: 10P 50V D (FG651100)
- C 707,807,907: 68P 50V J (FG651680)
- C 706,806: 330P 50V K (FG612330)
- C 734,903: 6P 50V D (FG650600)
- C 933,934: 33P 50V J (FG651330)

09. Monolithic Ceramic Cap.
- C 931,935,939,940, 941,942,943: 0.10 50V Z (VV059300)

10. Electrolytic Cap.
- C 101,201,301,401, 501,601: 47.00 50.0V (UJ867470)
- C 108,208,308,408, 508,608: 470.00 10.0V (VV330700)
- C 112,120,121,212, 220,221,312,320, 321,412,420,421, 512,520,521,524, 612,620,621,624, 705,726,735,804, 805,826,904,905, 916,921,929: 10.00 25.0V (UJ847100)
- C 119,219,319,419, 519,619,704,723, 738,823,908,932: 47.00 25.0V (UJ847470)
- C 732,917: 100.00 16.0V (UJ838100)
- C 938: 1.00 50.0V (UJ866100)

11. Low leak Electrolytic Cap.
- C 102,103,202,203, 302,303,402,403, 502,503,602,603: 10.00 50.0V (VV488800)

12. Carbon Resistor
- R 101,134,135,201, 234,235,301,334, 335,401,434,435, 501,534-536,601, 634-636,708,719, 724,808,906,916,] 924: 100.0K 1/4 J (HF458100)
- R 105,205,305,405, 505,537,605,637, 712,812,910: 4.7K 1/4 J (HF456470)
- R 106,107,110,111, 128,206,207,210, 211,228,306,307, 310,311,328,406, 407,410,411,428, 506,507,510,511, 528,606,607,610, 611,628: 10.0 1/4 J (HF454100)
- R 112,212,312,412, 512,612: 150.0 1/4 J (HF455150)
- R 113,213,313,413, 726,727: 8.2K 1/4 J (HF456820)
- R 120,121,126,220, 221,226,320,321, 326,420,421,426, 520,521,526,538, 620,621,626,638, 705,710,713,805, 810,813,905,922, 930,933: 10.0K 1/4 J (HF457100)
- R 122,123,222,223, 322,323,422,423, 522,523,622,623, 730,731: 1.2K 1/4 J (HF456120)
- R 124,125,224,225, 324,325,424,425, 524,525,624,625, 706,707,806,807, 932: 3.3K 1/4 J (HF456330)
- R 127,227,327,427, 527,627: 3.9K 1/4 J (HF456390)
- R 129-131,229-231, 329-331,429-431, 513,529-533,613, 629-633,702,720, 802,902: 18.0K 1/4 J (HF457180)
- R 701,725,801: 120.0K 1/4 J (HF458120)
- R 703,803,903: 220.0 1/4 J (HF455220)
- R 704,804,904: 4.3K 1/4 J (HF456430)
- R 709,809,907: 560.0 1/4 J (HF455560)
- R 711,811: 750.0 1/4 J (HF455750)
- R 714-716,814-816, 934: 680.0 1/4 J (HF455680)
- R 721,722: 36.0K 1/4 J (HF457360)
- R 723,901: 220.0K 1/4 J (HF458220)
- R 728,729: 1.5K 1/4 J (HF456150)
- R 908,909,912,913, 914,917,918,919: 2.2K 1/4 J (HF456220)
- R 911,921: 1.0K 1/4 J (HF456100)
- R 915,931: 47.0K 1/4 J (HF457470)
- R 923: 22.0 1/4 J (HF454220)
- R 920: 100.0 1/4 J (HF455100)
- R 925,926: 27.0K 1/4 J (HF457270)
- R 927,928: 68.0K 1/4 J (HF457680)
- R 929: 2.7K 1/4 J (HF456270)
- R 935,936: 240.0K 1/4 J (HF758240)

13. Flame Proof C. Resistor
- R 104,204,304,404, 504,604: 390.0 1/4 J (VV058400)

14. Metal Film Resistor
- R 102,103,202,203, 302,303,402,403, 502,503,602,603: 6.8K 1/4 F (VB067300)
- R 108,109,208,209, 308,309,408,409, 508,509,608,609: 47K 1/4 F (VB068800)
- R 114,115,214,215, 314,315,414,415, 514,515,614,615: 8.2K 1/4 F (VB067400)
- R 116,117,216,217, 316,317,416,417, 516,517,616,617: 2.2K 1/4 F (VB066300)
- R 118,119,218,219, 318,319,418,419, 518,519,618,619, 717,718: 10K 1/4 F (VA074400)
- R 132,133,232,233, 332,333,432,433: 3.9K 1/4 F (VB066900)

15. Slide Variable Resistor
- VR 702-708, 802-808: RS20H11KD017-YL (VV044600)

16. Rotary Variable Resistor
- VR 101-103,201-203,301-303, 401-403,501-503,601-603: B 50.0K RK09K1 (VV058900)
- VR 104-106,204-206,304-306, 404-406,504-506,604-606, 701,709,710, 801,901-903: A 20.0K RK09K1 (VU804600)

17. Noise Filter
- EM 901-904: ZJSR5101-223TA (VV056900)

18. Ceramic Resonator
- X 901: 12M CSA12.0MTZ (QU007700)

19. Slide Switch
- SW701: SSSU013NB1-YL (VV044700)
- SW702: SSSU012NB1-YL (VV051500)

20. Push Switch
- SW101,201,301, 401,901: SPEA12MC15-YL (VU805000)
- SW902: SPEA31MC16-YL (VU804900)

21. Pin Jack
- JK 702: JK040057PN (VY704800) TAPE IN(1,2) RE

22. Phone Jack
- JK 102: JY-6351B-02-340 (VU805400) Hi-Z (CH1)
- JK 202: JY-6351B-02-340 (VU805400) Hi-Z (CH2)
- JK 302: JY-6351B-02-340 (VU805400) Hi-Z (CH3)
- JK 402: JY-6351B-02-340 (VU805400) Hi-Z (CH4)
- JK 502: JY-6351B-02-340 (VU805400) LINE 1 (CH5)
- JK 503: JY-6351B-02-340 (VU805400) LINE 2 (CH5)
- JK 602: JY-6351B-02-340 (VU805400) LINE 1 (CH6)
- JK 603: JY-6351B-02-340 (VU805400) LINE 2 (CH6)
- JK 701: JY-6351B-02-340 (VU805400) MAIN (UTPUT)
- JK 703: JY-6351B-02-340 (VU805400) AUX IN
- JK 801: JY-6351B-02-340 (VU805400) MONITOR (OUTPUT
- JK 901: JY-6351B-02-340 (VU805400) EFFECT OUT
- JK 902: JY-6351B-02-340 (VU805400) FOOT SW

23. XLM Connector
- JK 101: XLR NC3FAV1-0 (VU805200) Lo-Z (CH1)
- JK 201: XLR NC3FAV1-0 (VU805200) Lo-Z (CH2)
- JK 301: XLR NC3FAV1-0 (VU805200) Lo-Z (CH3)
- JK 401: XLR NC3FAV1-0 (VU805200) Lo-Z (CH4)
- JK 501: XLR NC3FAV1-0 (VU805200) MIC (CH5)
- JK 601: XLR NC3FAV1-0 (VU805200) MIC (CH6)

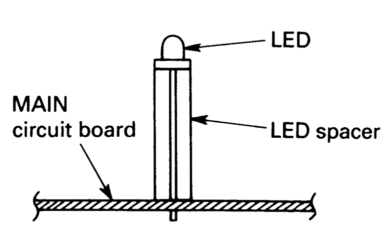
24. Connector Base Post
- CN 901: M2426XX 15P (VV067500) to POWER 1/3-CN101

25. Connector Assembly
- : 2426&2426 15P 60 (VV087700)

26. Button
- : CD-GRAY/WHITE (VU860700) DIGITAL EFFECT(VOCAL, ON, L HALL, S HALL), PAD

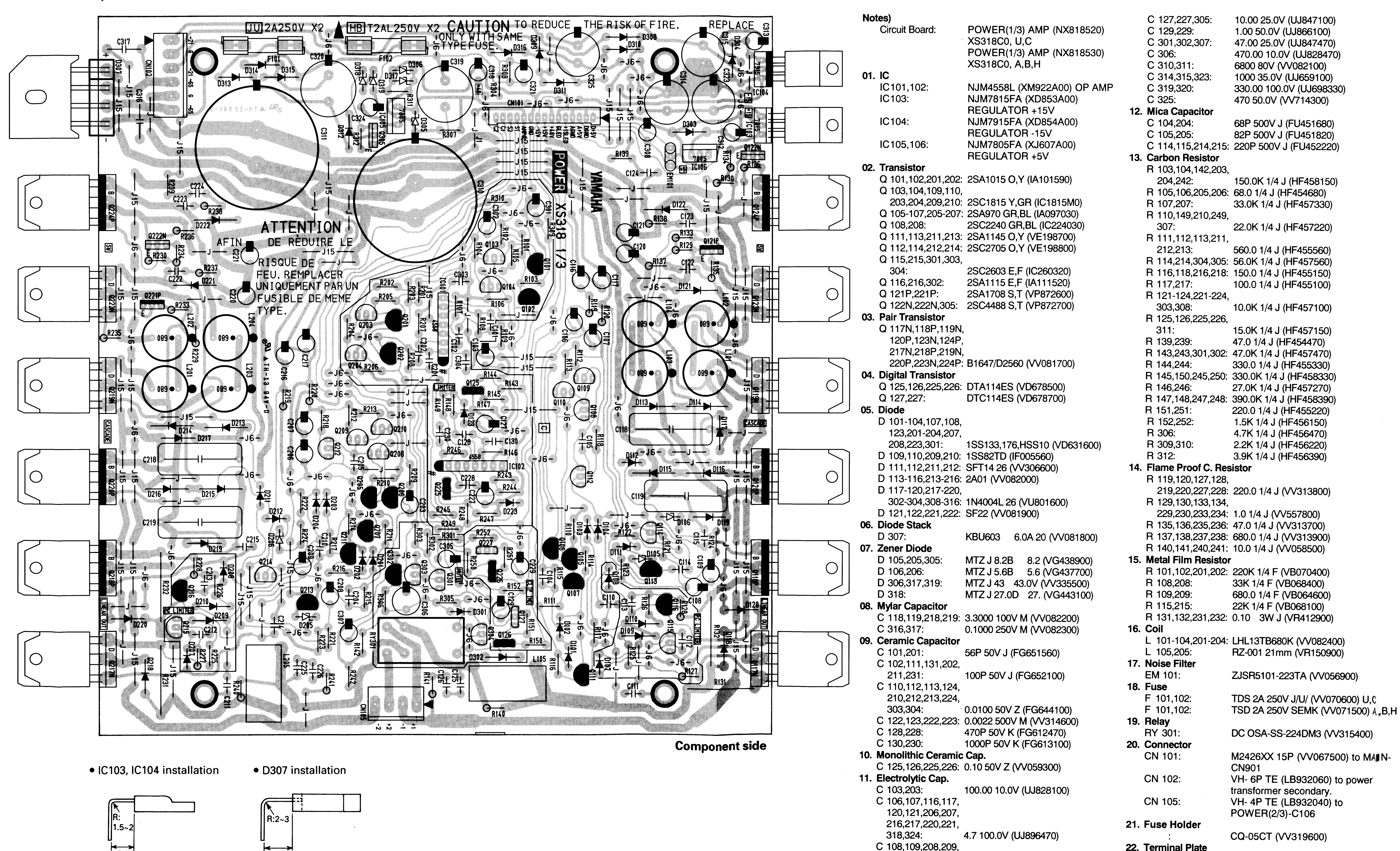
27. Jumper Wire
- JP 901: 0.60 (--)

• LED installation



EMX640

• POWER1/3 Circuit Board



Notes)

Circuit Board: POWER(1/3) AMP (NX818520) XS318C0, U,C
POWER(1/3) AMP (NX818530) XS318C0, A,B,H

01. IC
- IC101,102: NJM4558L (XM922A00) OP AMP
- IC103: NJM7815FA (XD853A00) REGULATOR +15V
- IC104: NJM7915FA (XD854A00) REGULATOR -15V
- IC105,106: NJM7805FA (XJ607A00) REGULATOR +5V

02. Transistor
- Q 101,102,201,202: 2SA1015 O,Y (IA101590)
- Q 103,104,109,110, 203,204,209,210: 2SC1815 Y,GR (IC1815M0)
- Q 105-107,205-207: 2SA970 GR,BL (IA097030)
- Q 108,208: 2SC2240 GR,BL (IC224030)
- Q 111,113,211,213: 2SA1145 O,Y (VE198700)
- Q 112,114,212,214: 2SC2705 O,Y (VE198800)
- Q 115,215,301,303, 304: 2SC2603 E,F (IC260320)
- Q 116,216,302: 2SA1115 E,F (IA111520)
- Q 121P,221P: 2SA1708 S,T (VP872600)
- Q 122N,222N,305: 2SC4488 S,T (VP872700)

03. Pair Transistor
- Q 117N,118P,119N, 120P,123N,124P, 217N,218P,219N, 220P,223N,224P: B1647/D2560 (VV081700)

04. Digital Transistor
- Q 125,126,225,226: DTA114ES (VD678500)
- Q 127,227: DTC114ES (VD678700)

05. Diode
- D 101-104,107,108, 123,201-204,207, 208,223,301: 1SS133,176,HSS10 (VD631600)
- D 109,110,209,210: 1SS82TD (IF005560)
- D 111,112,211,212: SFT14 26 (VV306600)
- D 113-116,213-216: 2A01 (VV082000)
- D 117-120,217-220, 302-304,308-316: 1N4004L 26 (VU801600)
- D 121,122,221,222: SF22 (VV081900)

06. Diode Stack
- D 307: KBU603 6.0A 20 (VV081800)

07. Zener Diode
- D 105,205,305: MTZ J 8.2B 8.2 (VG438900)
- D 106,206: MTZ J 5.6B 5.6 (VG437700)
- D 306,317,319: MTZ J 43 43.0V (VV335500)
- D 318: MTZ J 27.0D 27. (VG443100)

08. Mylar Capacitor
- C 118,119,218,219: 3.3000 100V M (VV082200)
- C 316,317: 0.1000 250V M (VV082300)

09. Ceramic Capacitor
- C 101,201: 56P 50V J (FG651560)
- C 102,111,131,202, 211,231: 100P 50V J (FG652100)
- C 110,112,113,124, 210,212,213,224, 303,304: 0.0100 50V Z (FG644100)
- C 122,123,222,223: 0.0022 500V M (VV314600)
- C 128,228: 470P 50V K (FG612470)
- C 130,230: 1000P 50V K (FG613100)

10. Monolithic Ceramic Cap.
- C 125,126,225,226: 0.10 50V Z (VV059300)

11. Electrolytic Cap.
- C 103,203: 100.00 10.0V (UJ828100)
- C 106,107,116,117, 120,121,206,207, 216,217,220,221, 318,324: 4.7 100.0V (UJ896470)
- C 108,109,208,209, 308,312,313,321: 4.70 50.0V (UJ866470)
- C 127,227,305: 10.00 25.0V (UJ847100)
- C 129,229: 1.00 50.0V (UJ866100)
- C 301,302,307: 47.00 25.0V (UJ847470)
- C 306: 470.00 10.0V (UJ828470)
- C 310,311: 6800 80V (VV082100)
- C 314,315,323: 1000 35.0V (UJ659100)
- C 319,320: 330.00 100.0V (UJ698330)
- C 325: 470 50.0V (VV714300)

12. Mica Capacitor
- C 104,204: 68P 500V J (FU451680)
- C 105,205: 82P 500V J (FU451820)
- C 114,115,214,215: 220P 500V J (FU452220)

13. Carbon Resistor
- R 103,104,142,203, 204,242: 150.0K 1/4 J (HF458150)
- R 105,106,205,206: 68.0 1/4 J (HF454680)
- R 107,207: 33.0K 1/4 J (HF457330)
- R 110,149,210,249, 307: 22.0K 1/4 J (HF457220)
- R 111,112,113,211, 212,213: 560.0 1/4 J (HF455560)
- R 114,214,304,305: 56.0K 1/4 J (HF457560)
- R 116,118,216,218: 150.0 1/4 J (HF455150)
- R 117,217: 100.0 1/4 J (HF455100)
- R 121-124,221-224, 303,308: 10.0K 1/4 J (HF457100)
- R 125,126,225,226, 311: 15.0K 1/4 J (HF457150)
- R 139,239: 47.0 1/4 J (HF454470)
- R 143,243,301,302: 47.0K 1/4 J (HF457470)
- R 144,244: 330.0 1/4 J (HF455330)
- R 145,150,245,250: 330.0K 1/4 J (HF458330)
- R 146,246: 27.0K 1/4 J (HF457270)
- R 147,148,247,248: 390.0K 1/4 J (HF458390)
- R 151,251: 220.0 1/4 J (HF455220)
- R 152,252: 1.5K 1/4 J (HF456150)
- R 306: 4.7K 1/4 J (HF456470)
- R 309,310: 2.2K 1/4 J (HF456220)
- R 312: 3.9K 1/4 J (HF456390)

14. Flame Proof C. Resistor
- R 119,120,127,128, 219,220,227,228: 220.0 1/4 J (VV313800)
- R 129,130,133,134, 229,230,233,234: 1.0 1/4 J (VV557800)
- R 135,136,235,236: 47.0 1/4 J (VV313700)
- R 137,138,237,238: 680.0 1/4 J (VV313900)
- R 140,141,240,241: 10.0 1/4 J (VV058500)

15. Metal Film Resistor
- R 101,102,201,202: 220K 1/4 F (VB070400)
- R 108,208: 33K 1/4 F (VB068400)
- R 109,209: 680.0 1/4 F (VB064600)
- R 115,215: 22K 1/4 F (VB068100)
- R 131,132,231,232: 0.10 3W J (VR412900)

16. Coil
- L 101-104,201-204: LHL13TB680K (VV082400)
- L 105,205: RZ-001 21mm (VR150900)

17. Noise Filter
- EM 101: ZJSR5101-223TA (VV056900)

18. Fuse
- F 101,102: TDS 2A 250V J/U/ (VV070600) U,C
- F 101,102: TSD 2A 250V SEMK (VV071500) A,B,H

19. Relay
- RY 301: DC OSA-SS-224DM3 (VV315400)

20. Connector
- CN 101: M2426XX 15P (VV067500) to MAIN-CN901
- CN 102: VH- 6P TE (LB932060) to power transformer secondary.
- CN 105: VH- 4P TE (LB932040) to POWER(2/3)-C106

21. Fuse Holder
- : CQ-05CT (VV319600)

22. Terminal Plate
- FT 101: (VV075700)

3NA-VV08250 ⚠2

• POWER2/3 Circuit Board

SPEAKERS

POWER AMP1 — A, B

BRIDGE

POWER AMP2 — A, B

JK101 JK102 JK103 JK104 JK105 FT101 C131 C231 CN106 CN107 CN108 CN109

RE WH BE BL

SP OUT

TH-13 94V-0

XS318 2/3

A 1 B BRIDGE A 2 B

W101

Component side

Notes)

Circuit Board:	POWER(2/3) SP (NX818540) XS318CO

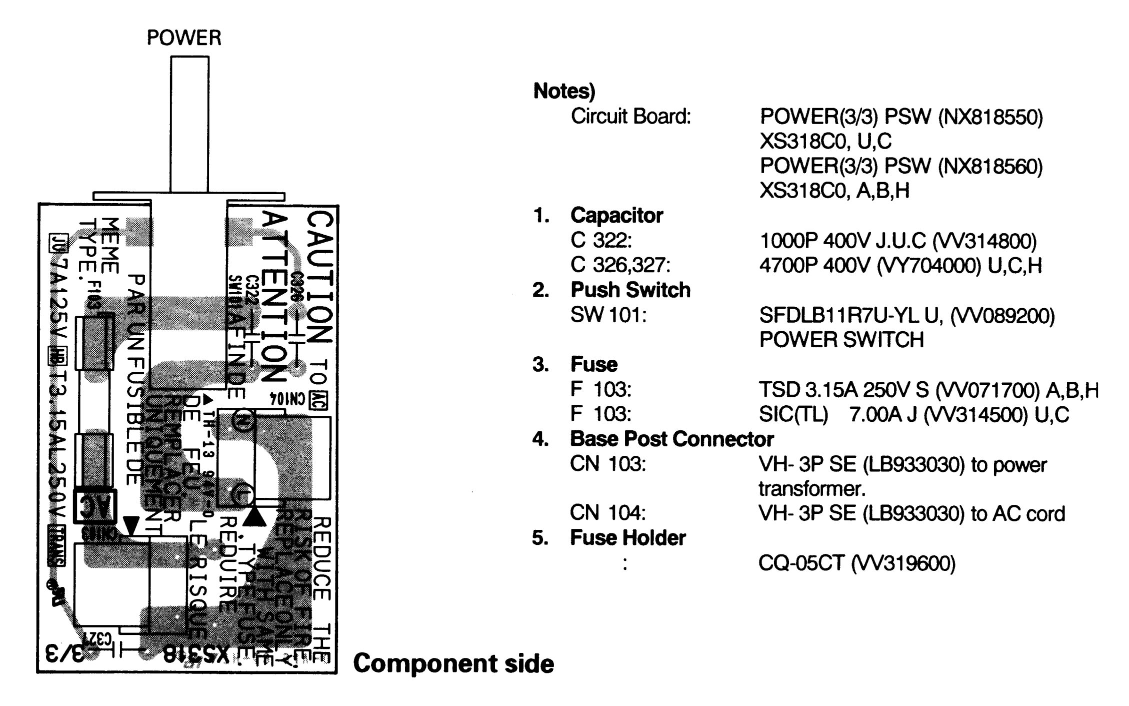
1. **Phone Jack**

JK 101:	H30280072N (VV089300) POWER AMP 1 A
JK 102:	H30280072N (VV089300) POWER AMP 1 B
JK 103:	H30280072N (VV089300) BRIDGE
JK 104:	H30280072N (VV089300) POWER AMP 2 A
JK 105:	H30280072N (VV089300) POWER AMP 2 B

2. **Connector Assembly**

W101:	B&C#18 200L (--) to POWER 1/3-CN

• POWER3/3 Circuit Board



Notes)

Circuit Board:	POWER(3/3) PSW (NX818550) XS318C0, U,C
	POWER(3/3) PSW (NX818560) XS318C0, A,B,H

1. **Capacitor**

C 322:	1000P 400V J.U.C (VV314800)
C 326,327:	4700P 400V (VY704000) U,C,H

2. **Push Switch**

SW 101:	SFDLB11R7U-YL U, (VV089200) POWER SWITCH

3. **Fuse**

F 103:	TSD 3.15A 250V S (VV071700) A,B,H
F 103:	SIC(TL) 7.00A J (VV314500) U,C

4. **Base Post Connector**

CN 103:	VH- 3P SE (LB933030) to power transformer.
CN 104:	VH- 3P SE (LB933030) to AC cord

5. **Fuse Holder**

:	CQ-05CT (VV319600)

■ INSPECTIONS

1. Mixer Part

1-1. Setting Conditions

Setting conditions are as follows unless otherwise specified.

1-1-1. Initial Conditions

AC Power Supply	
Standard Voltage:	± 2 %
Surrounding Conditions	
Temperature:	25 ± 5 ℃
Humidity:	65 ± 5 %

1-1-2. Measuring Instruments

Low Frequency Oscillator :	Balance output, Output Impedance = 150 Ω
Oscilloscope:	Input Impedance ≧ 100 k Ω
Level Meter:	Input Impedance ≧ 100 k Ω

Note:

1. Use a balance input type measuring instruments.
2. Apply DIN low pass filter when measuring the noise level.
3. 0 dBs = 0.775 V

1-1-3. Control Panel Setting

Channel Input (CH1-CH4) Section	
EQ (HIGH, MID, LOW) level controls:	Center
MONITOR level control:	Maximum
EFFECT level control:	Maximum
LEVEL:	Maximum
PAD:	OFF
Channel Input (CH5-CH6) Section	
EQ level controls:	Center
MONITOR level control:	Maximum
EFFECT level control:	Maximum
LEVEL:	Maximum
EFFECT	
DIGITAL EFFECT ON switch	OFF
EFFECT OUT	Maximum
MAIN	
GRAPHIC EQUALIZER (7 band)	
Fader:	Center
EFFECT RTN:	Maximum
AUX IN:	Maximum
TAPE IN:	Maximum
MASTER (MAIN):	Maximum
MONITOR	
GRAPHIC EQUALIZER (7 band)	
Fader:	Center
EFFECT RTN:	Maximum
MASTER (MAIN):	Maximum
PHANTOM 48V switch	OFF
POWER AMP switch	MAIN-MONITOR

1-1-4. Input and Output Load

Input Signal:	1 kHz, sine wave (Rs=150 Ω)
Load	
MAIN OUTPUT:	10 k Ω

MONITOR OUTPUT: 10 k Ω
EFFECT OUT: 10 k Ω
REC OUT (1, 2): 10 k Ω

1-2. Mixer Part Inspections

1-2-1. Gain

Gain of each output should be as shown in the table below.

Table 1: INPUT CH 1-CH 4

Input Terminal	Input Level	MAIN OUTPUT	MONITOR OUTPUT	EFFECT OUT	REC OUT (1, 2)
Lo-Z	-62 dBs	+4 dBs±2 dB	+4 dBs±2 dB	+10 dBs±2 dB	-13.8 dBs±2 dB
	-32 dBs (PAD ON)				
Hi-Z	-52 dBs	+4 dBs±2 dB	-	-	-

Table 2: INPUT CH5-CH6

Input Terminal	Input Level	MAIN OUTPUT	MONITOR OUTPUT	EFFECT OUT
MIC	-62 dBs	+4 dBs±2 dB	+4 dBs±2 dB	+10 dBs±2 dB
LINE (1, 2)	-22 dBs	+4 dBs±2 dB	-	-

Table 3: AUX IN and TAPE IN (1, 2)

Input Terminal	Input Level	MAIN OUTPUT
AUX IN	-22 dBs	+4 dBs±2 dB
TAPE IN (1, 2)	-22 dBs	+4 dBs±2 dB

1-2-2. Frequency Response

Under the gain measurement conditions, the frequency response of each input and output should be within 0^{+1}_{-3} dB at 20 Hz and 20 kHz when 1 kHz is set as the reference. (0 dB)

1-2-3. Graphic Equalizer Characteristics

When the input signals shown below are applied to channel input and graphic equalizer level controls are changed from center position (flat), the boost/cut range at the MAIN OUTPUT and the MONITOR OUTPUT should be as follows:

EQ Fader	Fader	Input Signal Frequency	Response
125 Hz	Maximum	125 Hz	+12 ±2 dB
	Minimum		-12 ±2 dB
250 Hz	Maximum	250 Hz	+12 ±2 dB
	Minimum		-12 ±2 dB
500 Hz	Maximum	500 Hz	+12 ±2 dB
	Minimum		-12 ±2 dB
1 kHz	Maximum	1 kHz	+12 ±2 dB
	Minimum		-12 ±2 dB
2 kHz	Maximum	2 kHz	+12 ±2 dB
	Minimum		-12 ±2 dB
4 kHz	Maximum	4 kHz	+12 ±2 dB
	Minimum		-12 ±2 dB
8 kHz	Maximum	8 kHz	+12 ±2 dB
	Minimum		-12 ±2 dB

If the result of the graphic equalizer characteristic is out of specification, change the input signal frequency so that the output signal can be at the set level. At that time, its frequency should be in the range of 80 %-120 %f standard frequency.

1-2-4. Equalizer Characteristics

When the input signals shown below are applied to the channel input and channel EQ (HIGH, MID, LOW) level controls are changed from center position (flat), the boost/cut range at the MAIN OUTPUT should be as follows:

EQ Controls	GAIN	Frequency	Response
HIGH	Maximum	12 kHz	+12 ±2 dB
	Minimum		-12 ±2 dB
MID	Maximum	2.5 kHz	+14 ±2 dB
	Minimum		-14 ±2 dB
LOW	Maximum	80 Hz	+12 ±2 dB
	Minimum		-12 ±2 dB

If the result of the equalizer characteristic is out of specification, change the input signal frequency so that the output signal can be at the set level. At that time, its frequency should be in the range of 80 %-120 % of standard frequency.

1-2-5. Meter LED

When the MAIN OUTPUT and MONITOR OUTPUT output levels are as shown in the table below, the corresponding METER LED lights up.

LED Name	Lighting Level
+6	+10 dBs ±2 dB
+3	+7 dBs ±2 dB
0	+4 dBs ±2 dB
-5	-1 dBs ±2 dB
-10	-6 dBs ±2.5 dB

1-2-6 Distortion

Set the level controls and faders of the INPUT section and MASTER section to nominal. When each output except REC OUT level reaches +14 dBs, the distortion ratio should be less than 0.1 % at 20 Hz through 20 kHz.

1-2-7 Maximum Output Level

Set the level controls and faders of the INPUT section and MASTER section to nominal and apply a 1 kHz signal. The maximum output levels of MAIN OUTPUT, MONITOR OUTPUT and EFFECT OUT should be +20 dBs with distortion less than 1%.

1-2-8 Equivalent Input Noise

When the Lo-Z and MIC input terminals are terminated with a 150 Ω resistor, the MAIN OUTPUT terminal noise level should be less than -46 dBs. If the noise level does not reach -46 dBs due to a gain variance, the converted noise level (= noise level minus actual gain of the channel) should be less than -121 dBs. (Apply DIN-AUDIO filter.)

1-2-9 Residual Noise

Set the input level controls at minimum. When the MASTER level controls in the MAIN and MONITOR section and EFFECT OUT level control in the EFFECT section are changed to maximum or minimum, the residual noise should be as shown in the table below. (Apply DIN-AUDIO filter.)

MASTER VOLUME	MAIN OUTPUT	MONITOR OUT	EFFECT OUT
Maximum	-71 dBs	-73 dBs	-67 dBs
Minimum	-88 dBs	-88 dBs	-88 dBs

1-2-10 Phantom Power (+48 V)

When the PHANTOM switch is turned on, +48±4 V should be obtained between pin 2/3 and pin 1 of the XLR connector at no load resistance.

1-2-11 Digital Effect

Use music with vocals to confirm that the output sound has a digital effect.

2. Power Amplifier Part
2-1. Setting Conditions
Setting conditions are as follows unless otherwise specified.

2-1-1. Initial Conditions
AC Power Supply

Standard Voltage:	± 1 %

Surrounding Conditions

Temperature:	25 ± 5 ℃
Humidity:	65 ± 5 %

2-1-2. Control Panel Setting

Input Terminal:	INPUT CH 6 LINE 1
POWER AMP switch:	MAIN-MONITOR
Measuring Output Terminal:	SPEAKERS, POWER AMP 1-A, POWER AMP 2-A
Output Load:	4 Ω (200 W or higher, connect the resistor when inspecting the power amplifier section)
LEVEL (Input channel 1-5)	Minimum
MONITOR level control	Minimum

Note: Other control settings are the same as mixer part section 1-1-3.

2-2. Power Amplifier Inspections
2-2-1. Power ON Muting
The muting relay should turn on 2.5±1 seconds after the power switch is turned on.

2-2-2. Speaker Terminal DC Voltage
When input terminal is grounded, the POWER AMP 1 (A and B) and POWER AMP 2 (A and B) SPEAKERS terminal voltage should be 0±100 mV.

2-2-3. Gain
Set the INPUT channel 6 level control at nominal and apply a 1 kHz -26.0 dBs signal. The SPEAKERS terminal output levels should be +20.0 dBs±2 dB.
Change the POWER AMP switch position to MAIN-MAIN, and confirm the POWER AMP 1-B and POWER AMP 2-B SPEAKERS terminals gain in the same manner as mentioned above.

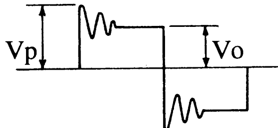
2-2-4. Frequency Response
Apply a signal to the input; the output level should be 0^{+1}_{-3} dB at 20 Hz and 20 kHz when 1 kHz is set as the reference. (0 dB)

2-2-5. Harmonic Distortion
Apply a 1 kHz signal to the input; the output level should be 200 W+200 W/4 Ω(31.2 dBs/ch); the distortion ratio should be less than 0.5 %.
Apply a signal of 20 Hz, 1 kHz and 20 kHz to the input separately; the output level should be 100 W+100 W/4 Ω (28.2 dBs/ch); the distortion ratio should be less than 0.5 %.

2-2-6 Residual Noise
Set the MASTER level controls (MONITOR and MAIN) at minimum; the residual noise should be less than -68 dBs.
Notes:
1. Apply DIN-AUDIO filter.
2. When measuring the residual noise, be sure that inductive noise does not interfere.

2-2-7 Stability
Apply a 10 kHz -26 dBs rectangular signal to the input and connect a 4 Ω resistor and a capacitor (10 pF to 0.47 μ F) parallel to the load resistor; or connect an inductor (10 μ H to 0.47 H) serial to the load resistor. Confirm that the output signal should be illustrated below.

Overshoot: Vp/Vo≦1.8
Ringing: 5 waves and less than 5 waves



Next, only connect a capacitor (10 pF to 0.47 μ F) to SPEAKERS terminal as a load, and confirm the output is as follows:

Overshoot Vp/Vo≦2.5
Ringing It should be ended within 7 waves and there is no oscillation.

2-2-8 Protection

Apply a 10 Hz signal to the input; increase the input signal so that the output signal is clipped. Confirm that the protection does not operate and the speaker relay should not activate.
When applying a 1 Hz, 4 Vp-p (5.2 dBs) sine wave signal to the input; confirm that the protection operates within 2 seconds and the speaker relay is turned off. When turning off the input signal, confirm that the protection stops the operation within 5 seconds and the speaker relay is turned on.

2-2-9 PC Limiter and Limiter

Apply a 1 kHz -20 dBs sine wave signal to the input and connect a 1 Ω(±5 % 100 W) resistor; confirm that the output signal is be Vp-p≦20V and the signal is not rectangular.

2-2-10 LIMITER Indicator

When applying a 1 kHz -20 dBs sine wave signal to the input, the LIMITER indicator should light on.

2-2-11 Efficiency

When applying a 1 kHz -24 dBs sine wave signal to the input, confirm that the power consumption is 180±50W.

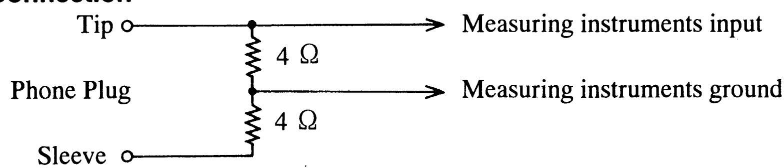
3. Main Bridge

3-1. Control Panel Setting

POWER AMP switch:	MAIN BRIDGE
Input Terminal:	INPUT CH 6 LINE 1
MASTER (MAIN)	Maximum
Measuring Output Terminal:	SPEAKERS, BRIDGE
Output Load:	8 Ω(400W or more than 400 W)
MONITOR level control	Minimum

Note: Other control settings are the same as mixer part section 1-2.

3-1-2. Connection



3-2. MAIN BRIDGE Inspection

3-2-1. Gain

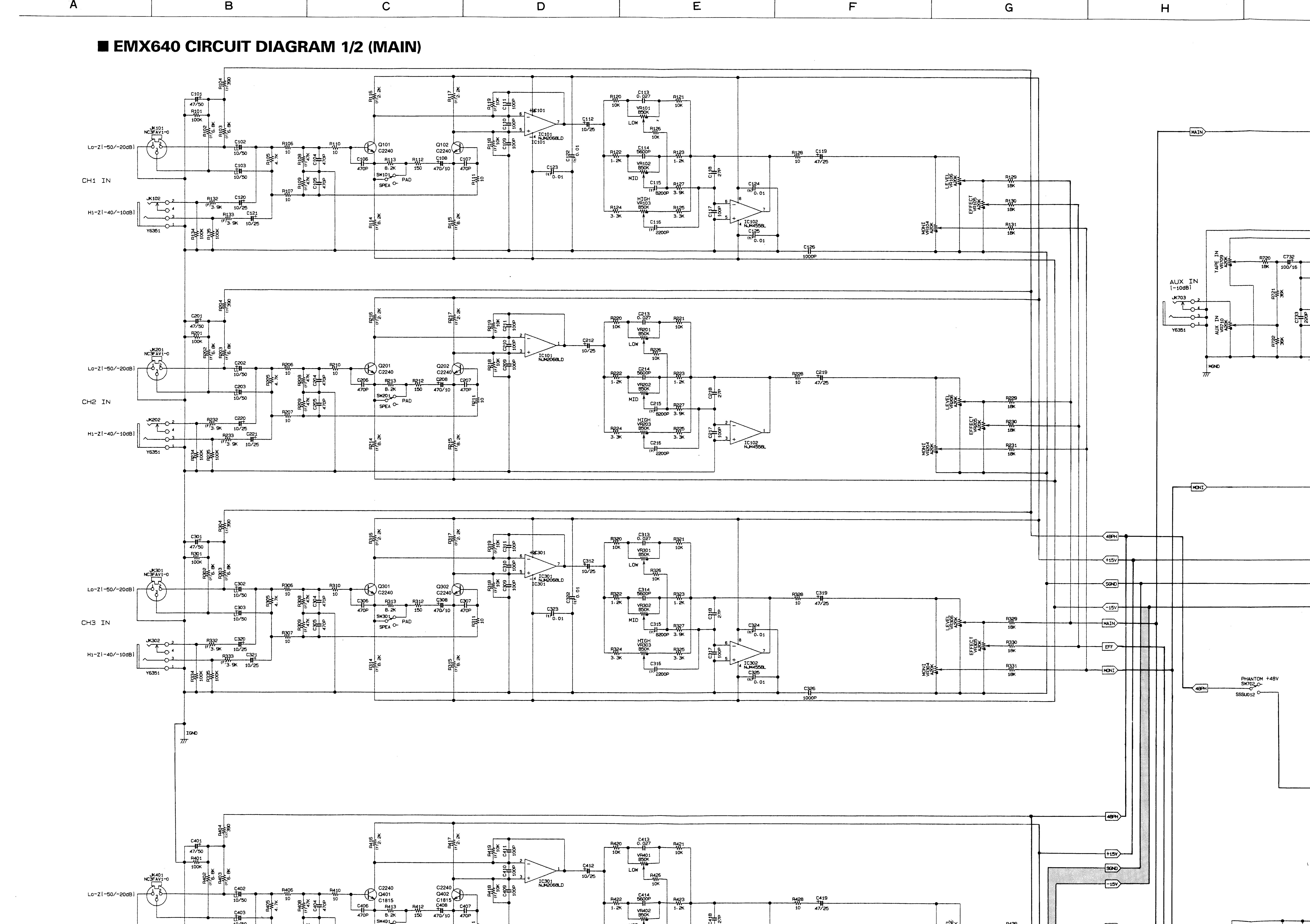
Apply a 1 kHz -26.0 dBs signal; confirm that the output levels are +20.0 dBs±2 dB.

3-2-2. Frequency Response

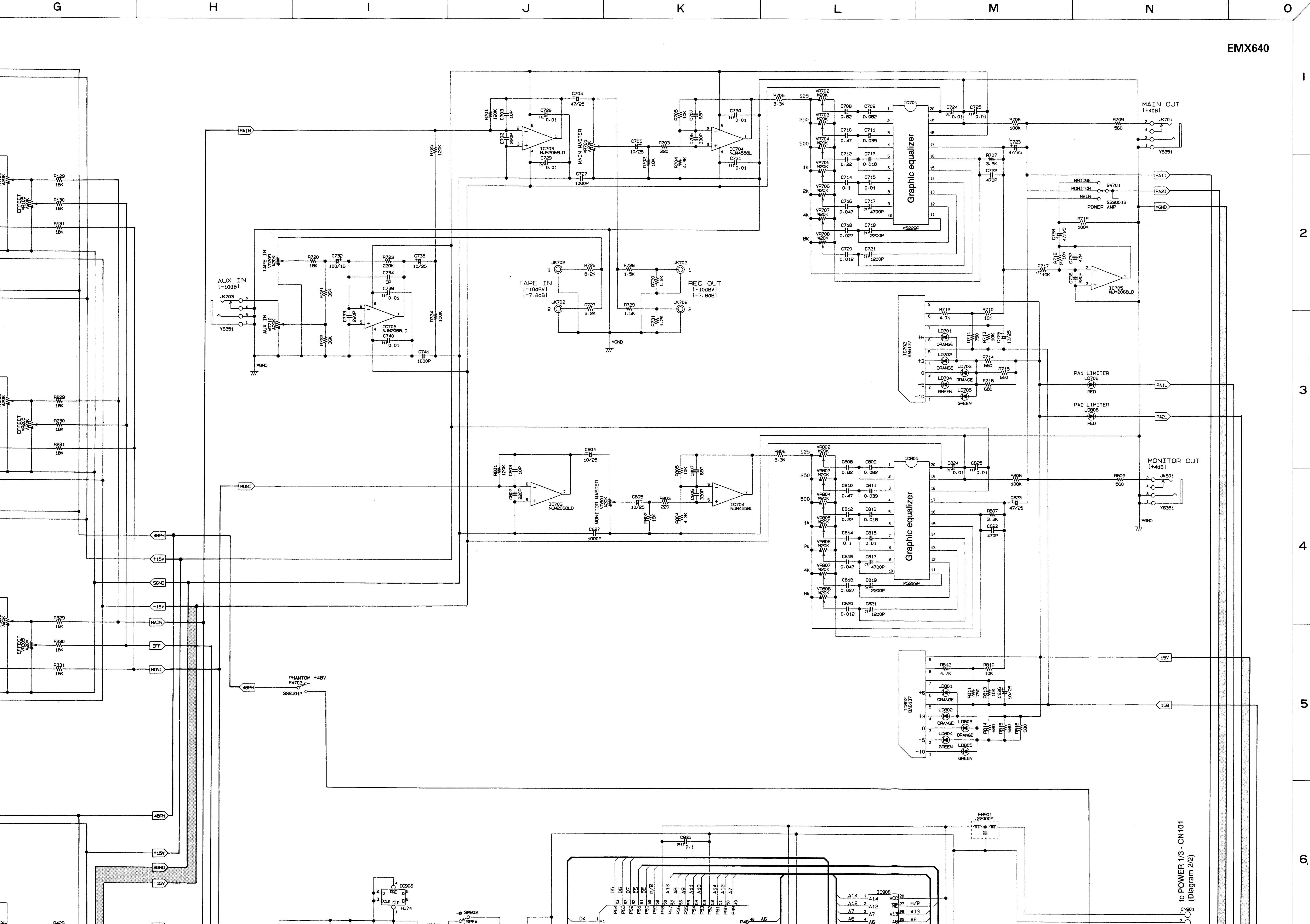
Apply a 1 kHz -26.0 dB sine wave signal to the input; the output level should be 0^{+1}_{-3} dB at 20 Hz and 20 kHz when 1 kHz is set as the reference. (0 dB)

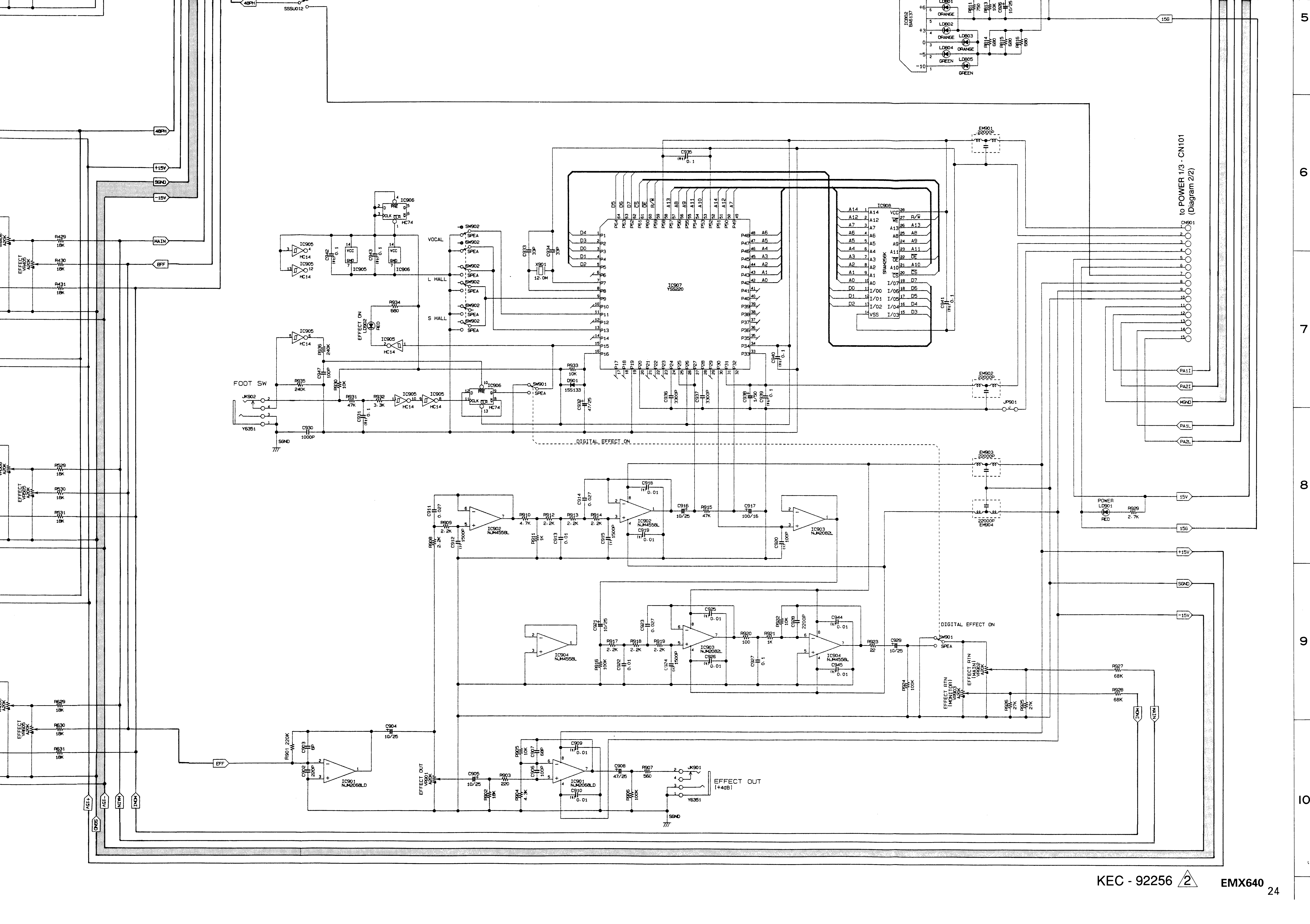
4. Power Supply Fluctuation

There should be no operational problem when the power supply fluctuation is within ±10 % of nominal voltage.

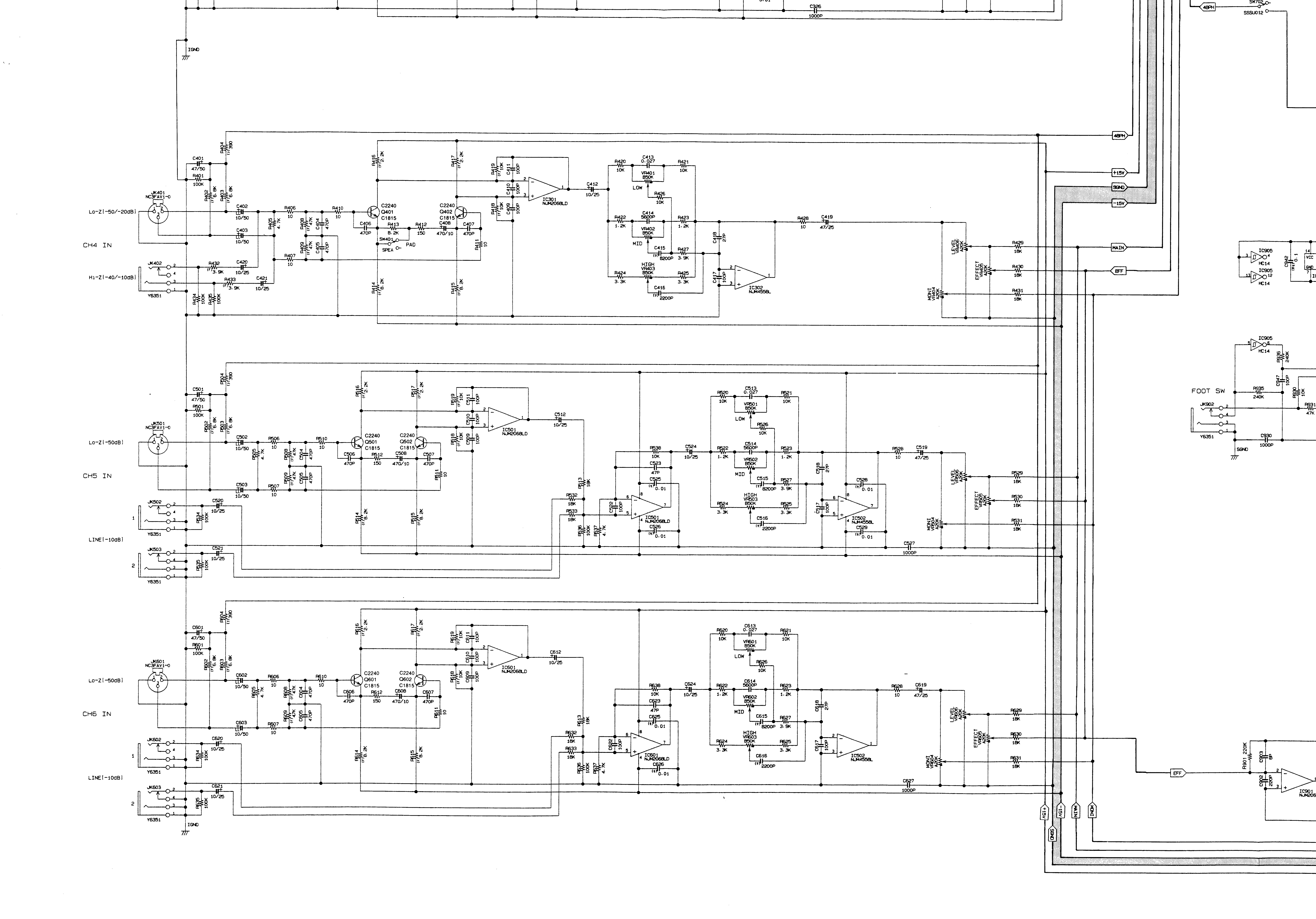


A
B
C
D
E
F
G
H
■ EMX640 CIRCUIT DIAGRAM 1/2 (MAIN)
CH1 IN
CH2 IN
CH3 IN
Lo-Z(-50/-20dB)
Hi-Z(-40/-10dB)
JK101
NC3FAV1-0
JK102
Y6351
JK201
JK202
JK301
JK302
JK401
Q101
C2240
Q102
Q201
Q202
Q301
Q302
Q401
C1815
Q402
IC101
NJM2068LD
IC102
NJM4558L
IC301
IC302
SW101
SW201
SW301
SW401
PAD
SPEA
LOW
MID
HIGH
LEVEL
EFFECT
MONI
IGND
MGND
AUX IN
(-10dB)
JK703
TAPE IN
PHANTOM +48V
SW702
SSSU012
MAIN
48PH
+15V
SGND
-15V
EFF

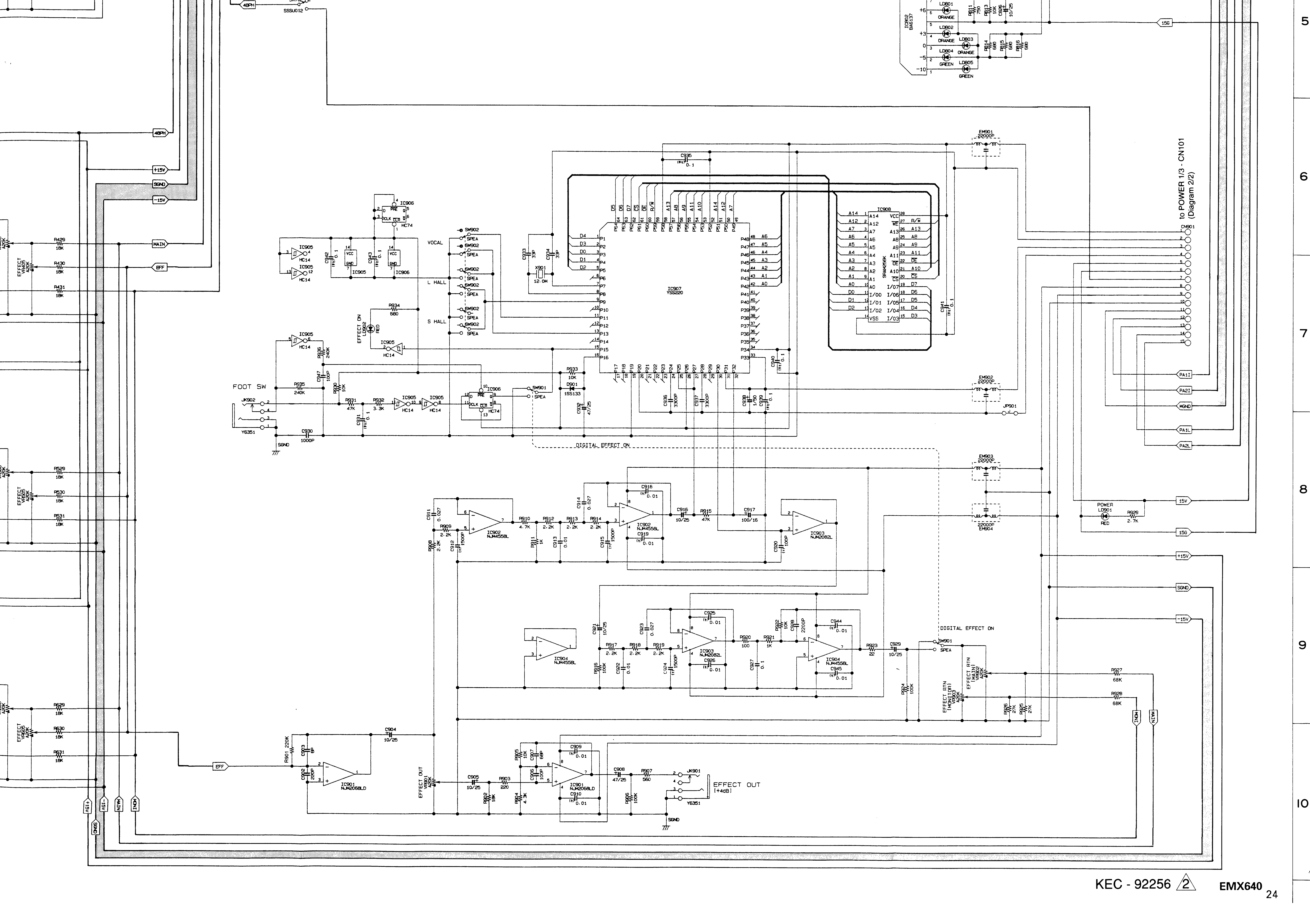

G
H
I
J
K
L
M
N
O
1
2
3
4
5
6
MAIN
MONI
AUX IN
(-10dB)
TAPE IN
(-10dBV)
(-7.8dB)
REC OUT
(-10dBV)
(-7.8dB)
MAIN MASTER
MONITOR MASTER
Graphic equalizer
Graphic equalizer
MAIN OUT
(+4dB)
MONITOR OUT
(+4dB)
BRIDGE
MONITOR
MAIN
POWER AMP
PA1 LIMITER
PA2 LIMITER
PHANTOM +48V
48PH
+15V
SGND
-15V
EFF
MGND
PA1I
PA2I
PA1L
PA2L
15V
15G
to POWER 1/3 - CN101
(Diagram 2/2)



to POWER 1/3 - CN101
(Diagram 2/2)
FOOT SW
VOCAL
L HALL
S HALL
EFFECT ON
DIGITAL EFFECT ON
EFFECT OUT
EFFECT OUT
[+4dB]
EFFECT RTN
POWER
IC907
YSS220
IC908
SRAM256K
IC901
NJM2068LD
IC902
NJM4558L
IC903
NJM2082L
IC904
NJM4558L
IC905
HC14
IC906
HC74

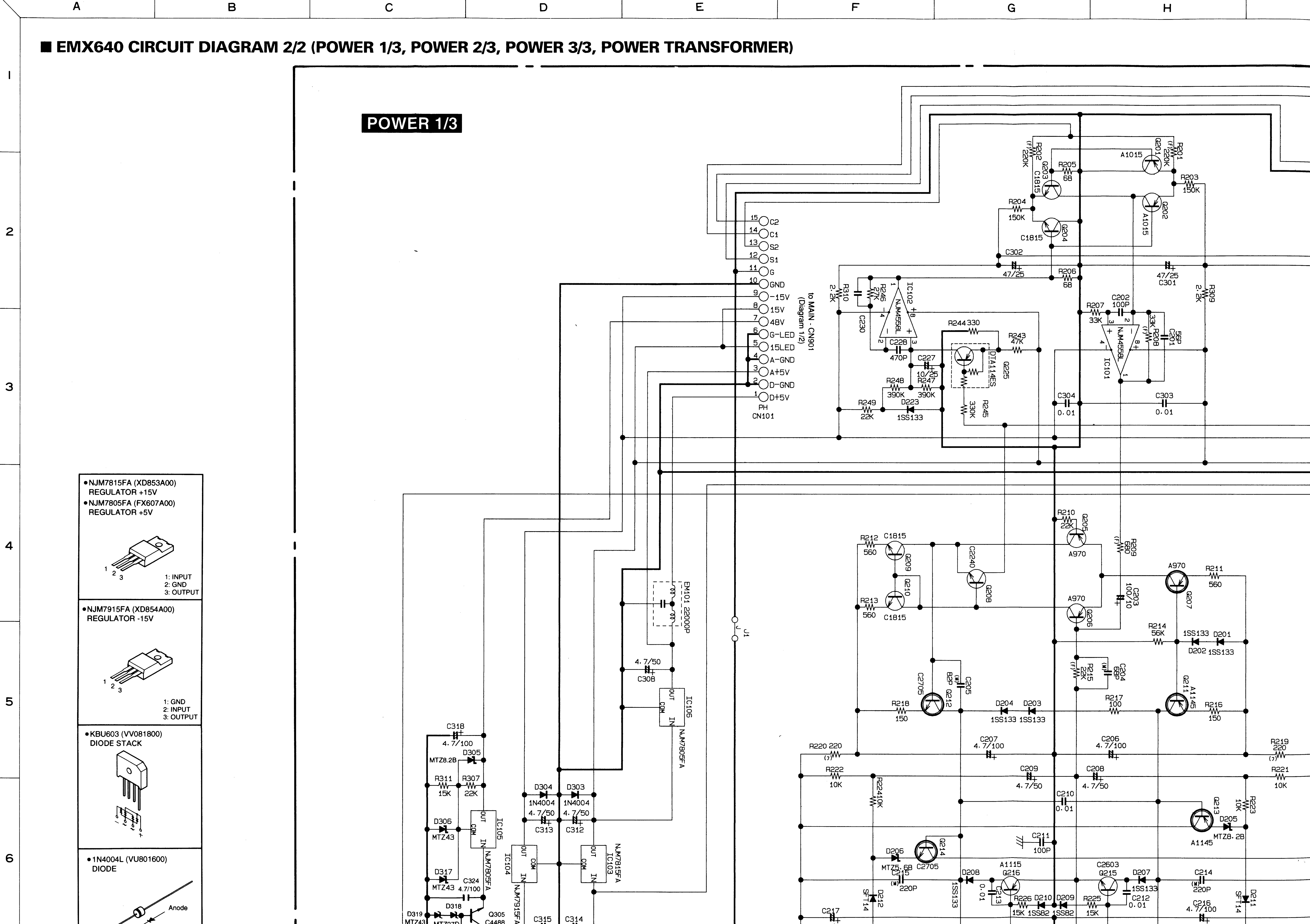


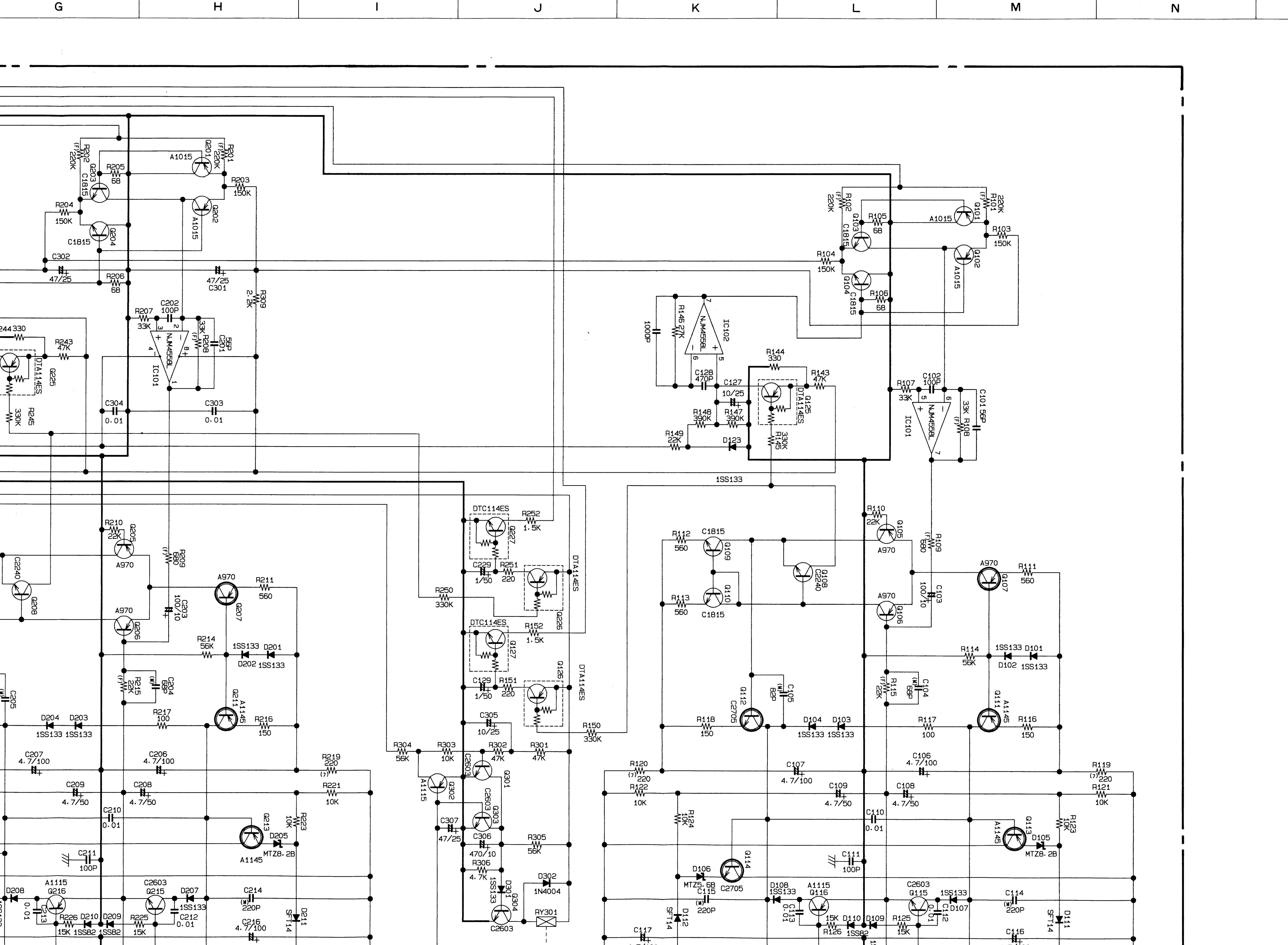
CH4 IN
Lo-Z(-50/-20dB)
Hi-Z(-40/-10dB)
JK401
NC3FAV1-0
JK402
Y6351
IC301
NJM2068LD
IC302
NJM4558L
SW401
PAD
LOW
MID
HIGH
LEVEL
EFFECT
MONI
CH5 IN
Lo-Z(-50dB)
JK501
NC3FAV1-0
JK502
JK503
LINE(-10dB)
IC501
NJM2068LD
IC502
NJM4558L
CH6 IN
Lo-Z(-50dB)
JK601
NC3FAV1-0
JK602
JK603
IC601
IC901
FOOT SW
JK902
IC905
HC14
48PH
+15V
SGND
-15V
MAIN
EFF
IGND
C326
1000P
SSSU012



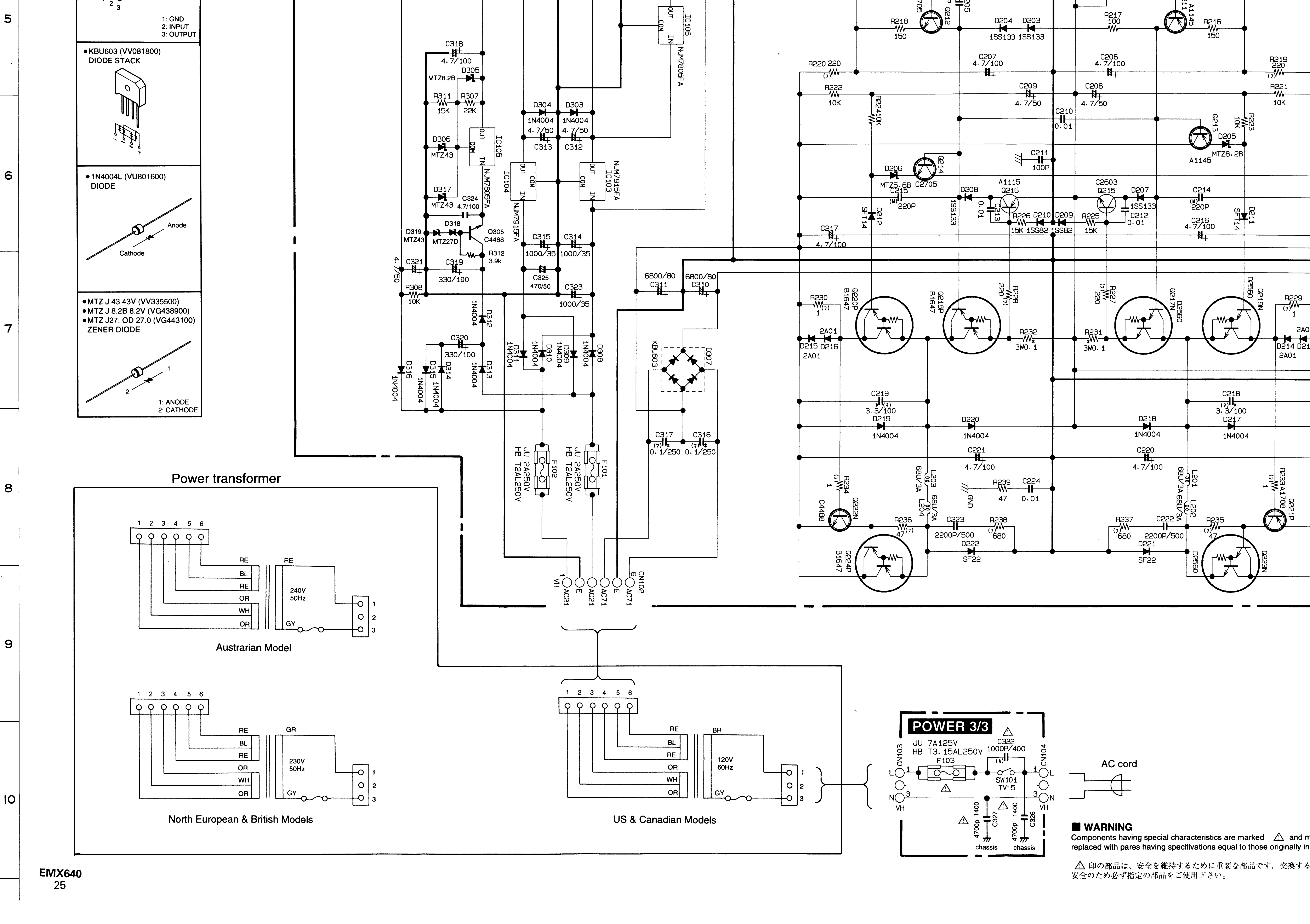
FOOT SW
VOCAL
L HALL
S HALL
EFFECT ON
DIGITAL EFFECT ON
EFFECT OUT
[+4dB]
to POWER 1/3 - CN101
(Diagram 2/2)
POWER
IC907
YSS220
IC908
NJM4558L
NJM2082L
NJM2068LD

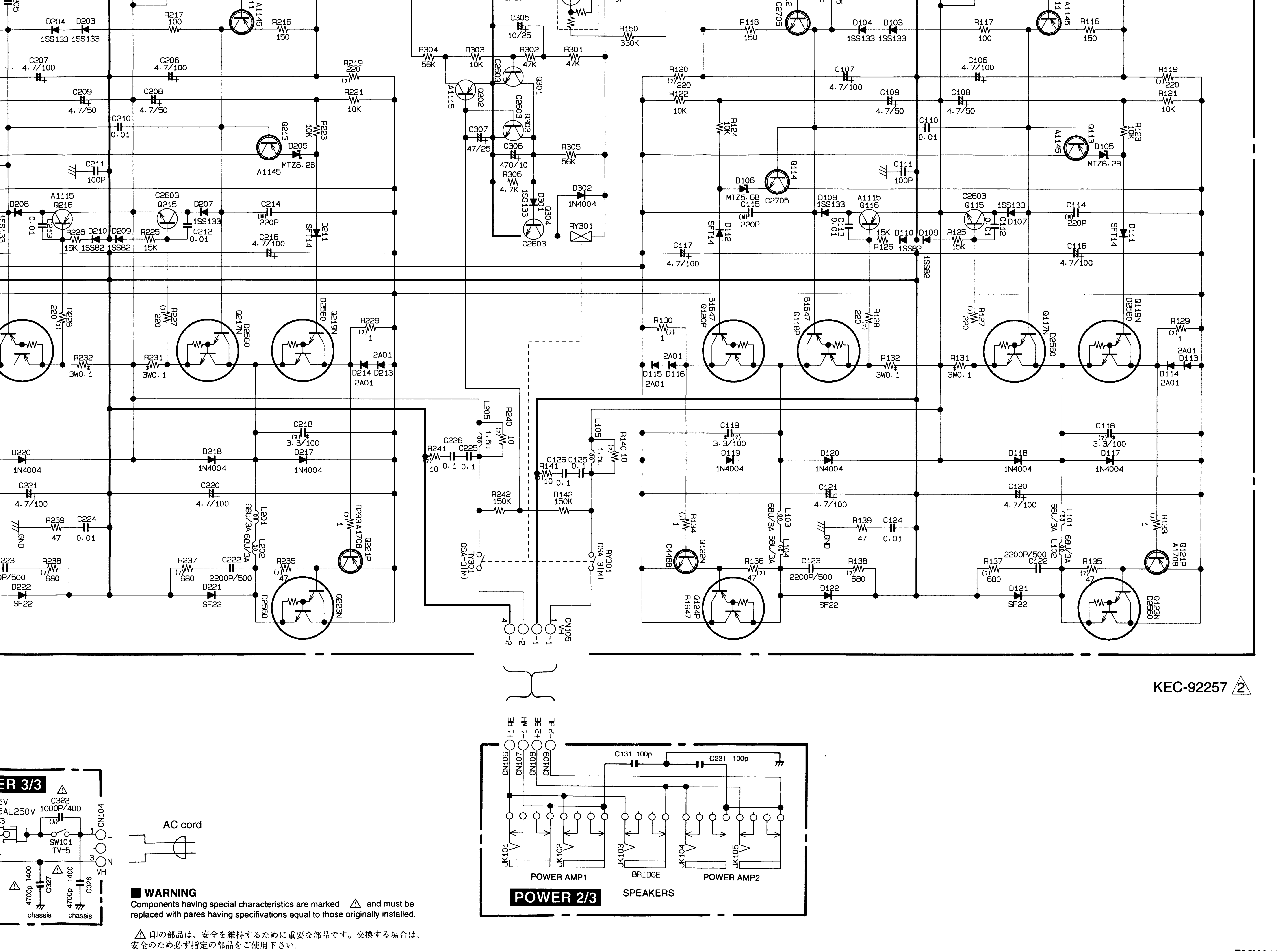
■ EMX640 CIRCUIT DIAGRAM 2/2 (POWER 1/3, POWER 2/3, POWER 3/3, POWER TRANSFORMER)





G
H
I
J
K
L
M
N
Q201
A1015
Q202
A1015
Q203
C1815
Q204
C1815
IC101
NJM4558L
Q225
DTA114ES
Q205
A970
Q206
A970
Q207
A970
Q208
C2240
Q211
A1145
Q213
A1145
Q215
C2603
Q216
A1115
Q227
DTC114ES
Q226
DTA114ES
Q127
DTC114ES
Q126
DTA114ES
Q301
C2603
Q302
A1115
Q303
C2603
Q304
C2603
RY301
D302
1N4004
Q101
A1015
Q102
A1015
Q103
C1815
Q104
C1815
IC102
NJM4558L
Q125
DTA114ES
Q105
A970
Q106
A970
Q107
A970
Q108
C2240
Q109
C1815
Q110
C1815
Q111
A1145
Q112
C2705
Q113
A1145
Q114
C2705
Q115
C2603
Q116
A1115
D123
1SS133
D205
MTZ8.2B
D105
MTZ8.2B
D106
MTZ5.6B
D211
SFT14
D111
SFT14
D112
SFT14


1: GND
2: INPUT
3: OUTPUT
•KBU603 (VV081800)
DIODE STACK
•1N4004L (VU801600)
DIODE
Anode
Cathode
•MTZ J 43 43V (VV335500)
•MTZ J 8.2B 8.2V (VG438900)
•MTZ J27. OD 27.0 (VG443100)
ZENER DIODE
1: ANODE
2: CATHODE
IC106 NJM7805FA
IC105 NJM7805FA
IC104 NJM7915FA
IC103 NJM7815FA
Q305 C4488
KBU603 D307
C311 6800/80
C310 6800/80
C317 0.1/250
C316 0.1/250
F102 JU 2A250V HB T2AL250V
F101 JU 2A250V HB T2AL250V
CN102
AC21 E AC21 AC71 E AC71
Power transformer
RE BL RE OR WH OR
240V 50Hz
GY
Austrarian Model
GR
230V 50Hz
North European & British Models
BR
120V 60Hz
US & Canadian Models
POWER 3/3
JU 7A125V
HB T3.15AL250V
C322 1000P/400
F103
CN103
CN104
SW101 TV-5
C327 4700p 1400
C326 4700p 1400
chassis
AC cord
■ WARNING
Components having special characteristics are marked ⚠ and m
replaced with pares having specifications equal to those originally in
⚠ 印の部品は、安全を維持するために重要な部品です。交換する
安全のため必ず指定の部品をご使用下さい。



■ WARNING

Components having special characteristics are marked ⚠ and must be replaced with pares having specifications equal to those originally installed.

⚠ 印の部品は、安全を維持するために重要な部品です。交換する場合は、安全のため必ず指定の部品をご使用下さい。

POWERED MIXER



PARTS LIST

■ CONTENTS

Notes: DESTINATION ABBREVIATIONS

A : Australian model	J : Japanese model
B : British model	U : U.S. model
C : Canadian model	V : General export model (110 V)
E : European model	W : General export model (220 V)
H : North European model	X : General export model
I : Indonesian model	Y : Export model

■WARNING

Components having special characteristics are marked ⚠ and must be replaced with having specifications equal to thoose originally installed.

⚠印の部品は、安全を維持するために重要な部品です。交換をする場合は、安全のため必ず指定の部品をご使用下さい。

- The numbers in "QTY" shows quantities for each unit.
- The parts with "--" in "Parts No." are not available as spare parts.

- 部品価格ランクは、変更になることがあります。
- QTY 欄に記されている数字は、各ユニット当たりの使用個数です。
- 部品 No.が "--" の部品は、サービス用部品として準備されていません。

■ ELECTRICAL PARTS

REF NO.	PART NO.	DESCRIPTION		部品名	REMARKS	QTY	ランク
		ELECTRICAL PARTS		電気部品	EMX640		
*	VV084900	Circuit Board	MAIN	メインシート	(XS329B0)		
*	NX818520	Circuit Board	POWER(1/3) AMP	パワーアンプシート	U,C (XS318C0)		
*	NX818530	Circuit Board	POWER(1/3) AMP	パワーアンプシート	A,B,H (XS318C0)		
*	NX818540	Circuit Board	POWER(2/3) SP	スピーカ端子シート	(XS318C0)		
*	NX818550	Circuit Board	POWER(3/3) PSW	パワースイッチシート	U,C (XS318C0)		
*	NX818560	Circuit Board	POWER(3/3) PSW	パワースイッチシート	A,B,H (XS318C0)		
*	VV084900	Circuit Board	MAIN	メインシート	(XS329B0)		
	VV307300	LED Spacer		LEDスペーサ			
*	VV087700	Connector Assembly	2426&2426 15P 600L	束線#28			
	VU860700	Button	CD-GRAY/WHITE	ボタン	DIGITAL EFFECT(VOCAL, ON, L HALL, S HALL), PAD		
	XG203A00	IC	M5229P	IC	GRAPHIC EQUALIZER		04
	XM356A00	IC	NJM2068L-D	IC	OP AMP		01
	XM922A00	IC	NJM4558L	IC	OP AMP		01
	XN796A00	IC	NJM2082L	IC	OP AMP		02
	IR001400	IC	TC74HC14AP	IC	HEX INVERTER		05
	IR007400	IC	TC74HC74AP	IC	DFF		04
*	XA534A00	IC	BA6137	IC	LED DRIVER		
	XQ696A00	IC	W24257-70LL	IC	SRAM		08
	XN299A00	IC	YSS234(SP3)	IC	DIGITAL SOUND PROCESSOR		11
	IC224030	Transistor	2SC2240 GR,BL	トランジスタ			01
	VD631600	Diode	1SS133,176,HSS104	ダイオード			01
	VV620800	LED	LT311G-41-C13 RE	LED			
	VV621000	LED	LT321-41-C13 GR	LED			
*	VV938100	LED	LT331-41-C13 YE	LED			
	UA353120	Mylar Capacitor	1200P 50V J	マイラーコン			01
	UA353150	Mylar Capacitor	1500P 50V J	マイラーコン			
	UA353220	Mylar Capacitor	2200P 50V J	マイラーコン			01
	UA353330	Mylar Capacitor	3300P 50V J	マイラーコン			
	UA353470	Mylar Capacitor	4700P 50V J	マイラーコン			01
	UA353560	Mylar Capacitor	5600P 50V J	マイラーコン			
	UA353820	Mylar Capacitor	8200P 50V J	マイラーコン			
	UA654100	Mylar Capacitor	0.010 50V J	マイラーコン			01
	UA654120	Mylar Capacitor	0.012 50V J	マイラーコン			01
	UA654180	Mylar Capacitor	0.018 50V J	マイラーコン			01
	UA654270	Mylar Capacitor	0.027 50V J	マイラーコン			01
	UA654390	Mylar Capacitor	0.039 50V J	マイラーコン			01
	UA654470	Mylar Capacitor	0.047 50V J	マイラーコン			01
	UA654820	Mylar Capacitor	0.082 50V J	マイラーコン			01
	UA655100	Mylar Capacitor	0.1 50V J	マイラーコン			01
	VV064100	Monolithic Mylar Capacitor	0.47 50V J	積層マイラーコン			
	VV064400	Monolithic Mylar Capacitor	0.82 50V J	積層マイラーコン			
	VV321100	Monolithic Mylar Capacitor	0.22 50V J	積層マイラーコン			
	UA352100	Polypropylene Capacitor	100P 50V J	PPコン			01
	FG612330	Ceramic Cap.-B	330P 50V K	セラコンB			01
	FG612470	Ceramic Capacitor-B	470P 50V K	セラコンB			01
	FG613100	Ceramic Capacitor-B	1000P 50V K	セラコンB			01
	FG650600	Ceramic Capacitor-SL	6P 50V D	セラコン(SL)			01
	FG651100	Ceramic Capacitor-SL	10P 50V D	セラコン(SL)			
	FG651270	Ceramic Capacitor-SL	27P 50V J	セラコン(SL)			01
	FG651330	Ceramic Capacitor-SL	33P 50V J	セラコン(SL)			01
	FG651470	Ceramic Capacitor-SL	47P 50V J	セラコン(SL)			
	FG651680	Ceramic Capacitor-SL	68P 50V J	セラコン(SL)			01
	FG652100	Ceramic Capacitor-SL	100P 50V J	セラコン(SL)			01
	FG652220	Ceramic Capacitor-SL	220P 50V J	セラコン(SL)			
	FG644100	Ceramic Capacitor-F	0.0100 50V Z	セラコンF			01
	VV059300	Monolithic Ceramic Cap.	0.10 50V Z	積層セラコン			
	UJ838100	Electrolytic Cap.	100.00 16.0V	ケミコン			01
	UJ847100	Electrolytic Cap.	10.00 25.0V	ケミコン			01
	UJ847470	Electrolytic Cap.	47.00 25.0V	ケミコン			01
	UJ866100	Electrolytic Cap.	1.00 50.0V	ケミコン			01
	UJ867470	Electrolytic Cap.	47.00 50.0V	ケミコン			01
	VV330700	Electrolytic Cap.	470.00 10.0V	ケミコンSM			
	VV488800	Low leak Electrolytic Cap.	10.00 50.0V	ローリークケミコンLLM			
	HF454100	Carbon Resistor	10.0 1/4 J	カーボン抵抗			01
	HF454220	Carbon Resistor	22.0 1/4 J	カーボン抵抗			01
	HF455100	Carbon Resistor	100.0 1/4 J	カーボン抵抗			01
	HF455150	Carbon Resistor	150.0 1/4 J	カーボン抵抗			01

* New Parts（新規部品）

ランク：Japan only

REF NO.	PART NO.	DESCRIPTION		部品名	REMARKS	QTY	ランク
	HF455220	Carbon Resistor	220.0 1/4 J	カーボン抵抗			01
	HF455560	Carbon Resistor	560.0 1/4 J	カーボン抵抗			01
	HF455680	Carbon Resistor	680.0 1/4 J	カーボン抵抗			01
	HF455750	Carbon Resistor	750.0 1/4 J	カーボン抵抗			01
	HF456100	Carbon Resistor	1.0K 1/4 J	カーボン抵抗			01
	HF456120	Carbon Resistor	1.2K 1/4 J	カーボン抵抗			01
	HF456150	Carbon Resistor	1.5K 1/4 J	カーボン抵抗			01
	HF456220	Carbon Resistor	2.2K 1/4 J	カーボン抵抗			01
	HF456270	Carbon Resistor	2.7K 1/4 J	カーボン抵抗			01
	HF456330	Carbon Resistor	3.3K 1/4 J	カーボン抵抗			01
	HF456390	Carbon Resistor	3.9K 1/4 J	カーボン抵抗			01
	HF456430	Carbon Resistor	4.3K 1/4 J	カーボン抵抗			01
	HF456470	Carbon Resistor	4.7K 1/4 J	カーボン抵抗			01
	HF456820	Carbon Resistor	8.2K 1/4 J	カーボン抵抗			01
	HF457100	Carbon Resistor	10.0K 1/4 J	カーボン抵抗			01
	HF457180	Carbon Resistor	18.0K 1/4 J	カーボン抵抗			01
	HF457270	Carbon Resistor	27.0K 1/4 J	カーボン抵抗			01
	HF457360	Carbon Resistor	36.0K 1/4 J	カーボン抵抗			01
	HF457470	Carbon Resistor	47.0K 1/4 J	カーボン抵抗			01
	HF457680	Carbon Resistor	68.0K 1/4 J	カーボン抵抗			01
	HF458100	Carbon Resistor	100.0K 1/4 J	カーボン抵抗			01
	HF458120	Carbon Resistor	120.0K 1/4 J	カーボン抵抗			01
	HF458220	Carbon Resistor	220.0K 1/4 J	カーボン抵抗			01
	HF758240	Carbon Resistor	240.0K 1/4 J	カーボン抵抗			01
	VV058400	Flame Proof C. Resistor	390.0 1/4 J	不燃化カーボン抵抗			
	VA074400	Metal Film Resistor	10K 1/4 F	金属被膜抵抗			01
	VB066300	Metal Film Resistor	2.2K 1/4 F	金属被膜抵抗			01
	VB066900	Metal Film Resistor	3.9K 1/4 F	金属被膜抵抗			01
	VB067300	Metal Film Resistor	6.8K 1/4 F	金属被膜抵抗			01
	VB067400	Metal Film Resistor	8.2K 1/4 F	金属被膜抵抗			01
	VB068800	Metal Film Resistor	47K 1/4 F	金属被膜抵抗			01
*	VV044600	Slide Variable Resistor	RS20H11KD017-YL	スライドVR20mm			
	VU804600	Rotary Variable Resistor	A 20.0K RK09K113	ロータリーVR			
	VV058900	Rotary Variable Resistor	B 50.0K RK09K113	ロータリーVR			
	VV056900	Noise Filter	ZJSR5101-223TA	ノイズフィルター EMI			
	QU007700	Ceramic Resonator	12M CSA12.0MTZ	セラミック振動子			03
*	VV044700	Slide Switch	SSSU013NB1-YL	スライドSW			
*	VV051500	Slide Switch	SSSU012NB1-YL	スライドSW			
	VU804900	Push Switch	SPEA31MC16-YL	プッシュSW			
	VU805000	Push Switch	SPEA12MC15-YL	プッシュSW			
JK101	VU805200	XLM Connector	XLR NC3FAV1-0	キャノンコネクタ	Lo-Z (CH1)		
JK102	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	Hi-Z (CH1)		
JK201	VU805200	XLM Connector	XLR NC3FAV1-0	キャノンコネクタ	Lo-Z (CH2)		
JK202	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	Hi-Z (CH2)		
JK301	VU805200	XLM Connector	XLR NC3FAV1-0	キャノンコネクタ	Lo-Z (CH3)		
JK302	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	Hi-Z (CH3)		
JK401	VU805200	XLM Connector	XLR NC3FAV1-0	キャノンコネクタ	Lo-Z (CH4)		
JK402	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	Hi-Z (CH4)		
JK501	VU805200	XLM Connector	XLR NC3FAV1-0	キャノンコネクタ	MIC (CH5)		
JK502	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	LINE 1 (CH5)		
JK503	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	LINE 2 (CH5)		
JK601	VU805200	XLM Connector	XLR NC3FAV1-0	キャノンコネクタ	MIC (CH6)		
JK602	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	LINE 1 (CH6)		
JK603	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	LINE 2 (CH6)		
JK701	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	MAIN (UTPUT)		
* JK702	VY704800	Pin Jack	JK040057PN	ピンコネクタ 4P	TAPE IN(1,2) REC OUT(1,2)		
JK703	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	AUX IN		
JK801	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	MONITOR (OUTPUT)		
JK901	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	EFFECT OUT		
JK902	VU805400	Phone Jack	JY-6351B-02-340	ホーンコネクタ	FOOT SW		
* CN901	VV067500	Connector Base Post	M2426XX 15P TE	コネクタベースポスト	to POWER 1/3-CN101		
	--	Jumper Wire	0.60	ジャンパー線	(VV29140)		
*	NX818520	Circuit Board	POWER(1/3) AMP	パワーアンプシート	U,C (XS318C0)		
*	NX818530	Circuit Board	POWER(1/3) AMP	パワーアンプシート	A,B,H (XS318C0)		
	XM922A00	IC	NJM4558L	IC	OP AMP		01
	XD853A00	IC	NJM7815FA	IC	REGULATOR +15V		03
	XD854A00	IC	NJM7915FA	IC	REGULATOR -15V		03
	XJ607A00	IC	NJM7805FA	IC	REGULATOR +5V		02
	IA097030	Transistor	2SA970 GR,BL	トランジスタ			01

* New Parts (新規部品)　　　　ランク：Japan only

REF NO.	PART NO.	DESCRIPTION		部品名	REMARKS	QTY	ランク
	IA101590	Transistor	2SA1015 O,Y	トランジスタ			01
	IA111520	Transistor	2SA1115 E,F	トランジスタ			01
	VE198700	Transistor	2SA1145 O,Y	トランジスタ			01
	VP872600	Transistor	2SA1708 S,T	トランジスタ			02
	IC1815M0	Transistor	2SC1815 Y,GR	トランジスタ			01
	IC224030	Transistor	2SC2240 GR,BL	トランジスタ			01
	IC260320	Transistor	2SC2603 E,F	トランジスタ			01
	VE198800	Transistor	2SC2705 O,Y	トランジスタ			01
	VP872700	Transistor	2SC4488 S,T	トランジスタ			01
*	VV081700	Pair Transistor	B1647/D2560	ペアトランジスタ			
	VD678500	Digital Transistor	DTA114ES	デジタルトランジスタ			03
	VD678700	Digital Transistor	DTC114ES	デジタルトランジスタ			03
	IF005560	Diode	1SS82TD	ダイオード			01
	VD631600	Diode	1SS133,176,HSS104	ダイオード			01
	VU801600	Diode	1N4004L 26	ダイオード			
*	VV081900	Diode	SF22	ダイオード			
*	VV082000	Diode	2A01	ダイオード			
*	VV306600	Diode	SFT14 26	ダイオード			
*	VV081800	Diode Stack	KBU603 6.0A 200V	ダイオードスタック			
	VG437700	Zener Diode	MTZ J 5.6B 5.6V	ツェナーダイオード			01
	VG438900	Zener Diode	MTZ J 8.2B 8.2V	ツェナーダイオード			01
	VG443100	Zener Diode	MTZ J 27.0D 27.0V	ツェナーダイオード			01
	VV335500	Zener Diode	MTZ J 43 43.0V	ツェナーダイオード			
*	VV082200	Mylar Capacitor	3.3000 100V M	フィルムコン			
*	VV082300	Mylar Capacitor	0.1000 250V M	フィルムコン			
	FG612470	Ceramic Capacitor-B	470P 50V K	セラコンB			01
	FG613100	Ceramic Capacitor-B	1000P 50V K	セラコンB			01
	FG651560	Ceramic Capacitor-SL	56P 50V J	セラコン(SL)			01
	FG652100	Ceramic Capacitor-SL	100P 50V J	セラコン(SL)			01
	FG644100	Ceramic Capacitor-F	0.0100 50V Z	セラコンF			01
*	VV314600	Ceramic Capacitor-B	0.0022 500V M	セラコンB			
	VV059300	Monolithic Ceramic Cap.	0.10 50V Z	積層セラコン			
	UJ698330	Electrolytic Cap.	330.00 100.0V	ケミコン			
	UJ828100	Electrolytic Cap.	100.00 10.0V	ケミコン			01
	UJ828470	Electrolytic Cap.	470.00 10.0V	ケミコン			01
	UJ847100	Electrolytic Cap.	10.00 25.0V	ケミコン			01
	UJ847470	Electrolytic Cap.	47.00 25.0V	ケミコン			01
	UJ866100	Electrolytic Cap.	1.00 50.0V	ケミコン			01
	UJ866470	Electrolytic Cap.	4.70 50.0V	ケミコン			01
	UJ896470	Electrolytic Cap.	4.7 100.0V	ケミコン			01
	VV714300	Electrolytic Cap.	470 50.0V	ケミコン			
	UJ659100	Electrolytic Cap.	1000 35.0V	ケミコン			02
*	VV082100	Electrolytic Cap.	6800 80V	ケミコン			
	FU451680	Mica Capacitor	68P 500V J	マイカコン			01
	FU451820	Mica Capacitor	82P 500V J	マイカコン			01
	FU452220	Mica Capacitor	220P 500V J	マイカコン			02
*	HF454470	Carbon Resistor	47.0 1/4 J	カーボン抵抗			01
*	HF454680	Carbon Resistor	68.0 1/4 J	カーボン抵抗			01
	HF455100	Carbon Resistor	100.0 1/4 J	カーボン抵抗			01
	HF455150	Carbon Resistor	150.0 1/4 J	カーボン抵抗			01
	HF455220	Carbon Resistor	220.0 1/4 J	カーボン抵抗			01
	HF455330	Carbon Resistor	330.0 1/4 J	カーボン抵抗			01
	HF455560	Carbon Resistor	560.0 1/4 J	カーボン抵抗			01
	HF456150	Carbon Resistor	1.5K 1/4 J	カーボン抵抗			01
	HF456220	Carbon Resistor	2.2K 1/4 J	カーボン抵抗			01
	HF456390	Carbon Resistor	3.9K 1/4 J	カーボン抵抗			01
	HF456470	Carbon Resistor	4.7K 1/4 J	カーボン抵抗			01
	HF457100	Carbon Resistor	10.0K 1/4 J	カーボン抵抗			01
	HF457150	Carbon Resistor	15.0K 1/4 J	カーボン抵抗			01
	HF457220	Carbon Resistor	22.0K 1/4 J	カーボン抵抗			01
	HF457270	Carbon Resistor	27.0K 1/4 J	カーボン抵抗			01
	HF457330	Carbon Resistor	33.0K 1/4 J	カーボン抵抗			01
	HF457470	Carbon Resistor	47.0K 1/4 J	カーボン抵抗			01
	HF457560	Carbon Resistor	56.0K 1/4 J	カーボン抵抗			01
	HF458150	Carbon Resistor	150.0K 1/4 J	カーボン抵抗			01
	HF458330	Carbon Resistor	330.0K 1/4 J	カーボン抵抗			01
	HF458390	Carbon Resistor	390.0K 1/4 J	カーボン抵抗			01
	VV058500	Flame Proof C. Resistor	10.0 1/4 J	不燃化カーボン抵抗			
	VV313700	Flame Proof C. Resistor	47.0 1/4 J	不燃化カーボン抵抗			
	VV313800	Flame Proof C. Resistor	220.0 1/4 J	不燃化カーボン抵抗			

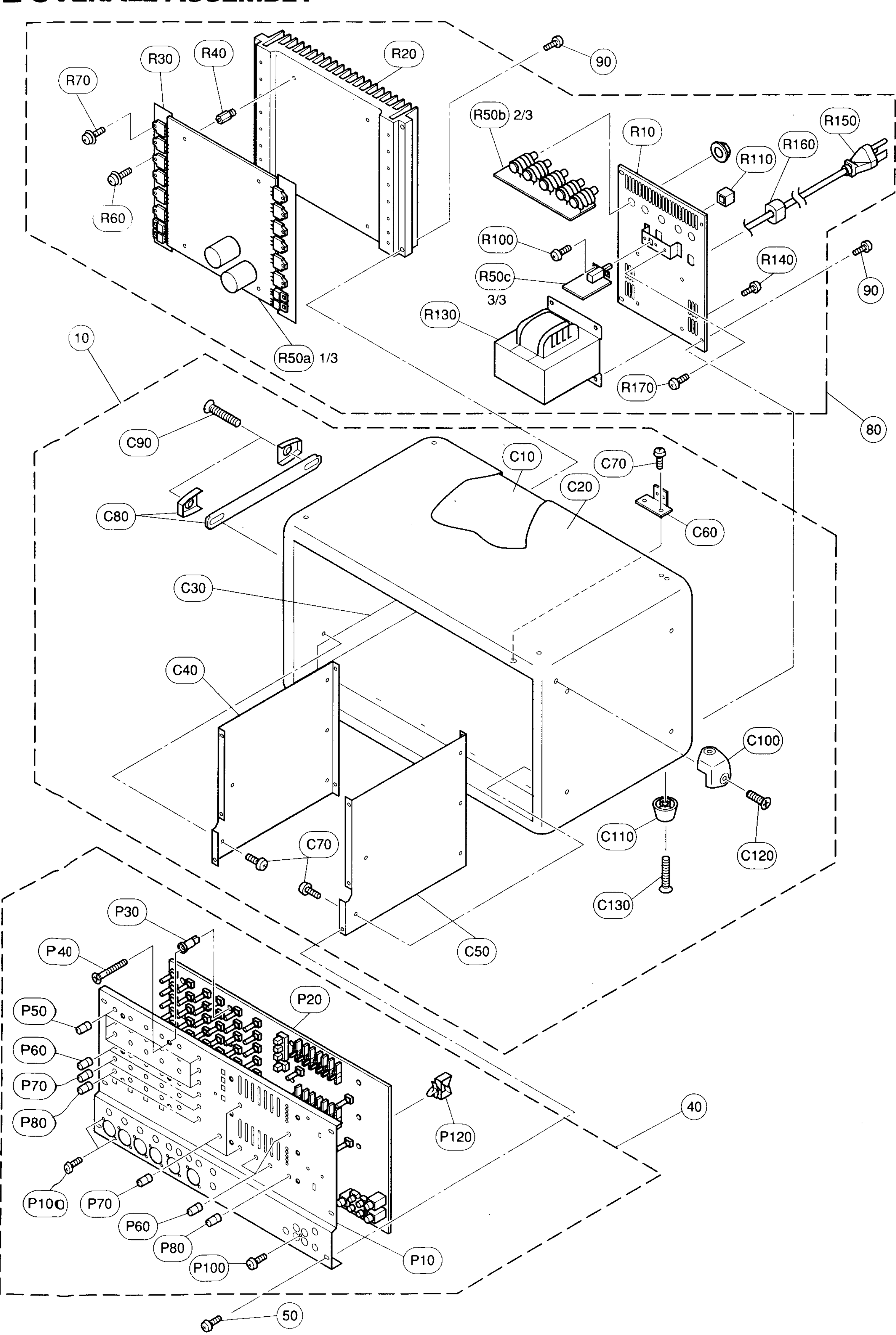
* New Parts (新規部品)　　　ランク：Japan only

	REF NO.	PART NO.	DESCRIPTION		部品名	REMARKS	QTY	ランク
*		VV313900	Flame Proof C. Resistor	680.0 1/4 J	不燃化カーボン抵抗			
*		VV557800	Flame Proof C. Resistor	1.0 1/4 J	不燃化カーボン抵抗			
*		VR412900	Metal Film Resistor	0.10 3W J	金属被膜抵抗			01
*		VB064600	Metal Film Resistor	680.0 1/4 F	金属被膜抵抗			01
		VB068100	Metal Film Resistor	22K 1/4 F	金属被膜抵抗			01
		VB068400	Metal Film Resistor	33K 1/4 F	金属被膜抵抗			01
		VB070400	Metal Film Resistor	220K 1/4 F	金属被膜抵抗			01
		VR150900	Coil	RZ-001 21mm	空芯コイル			02
		VV082400	Coil	LHL13TB680K	コイル			
		VV056900	Noise Filter	ZJSR5101-223TA	ノイズフィルター EMI			
*	F102	VV070600	Fuse	TDS 2A 250V J/U/C	ヒューズ	U,C		
	F102	VV071500	Fuse	TSD 2A 250V SEMKO	ヒューズ	A,B,H		
		VV315400	Relay	DC OSA-SS-224DM3M	リレー 24V			
*	CN101	VV067500	Connector Base Post	M2426XX 15P TE	コネクタベースポスト	to MAIN-CN901		
*	CN102	LB932060	Base Post Connector	VH- 6P TE	ベースポスト	to power trans. secondary		01
*	CN105	LB932040	Base Post Connector	VH- 4P TE	ベースポスト	to POWER(2/3)-CN106-109)		01
		VV319600	Fuse Holder	CQ-05CT	ヒューズホルダ			
		VV075700	Terminal Plate		ターミナル金具			
		NX818540	Circuit Board	POWER(2/3) SP	スピーカ端子シート	(XS318C0)		
	W101	--	Connector Assembly	B&C#18 200L	束線	to POWER 1/3-CN1(VV08120)		
*	JK101	VV089300	Phone Jack	H30280072N	ホーンコネクタ	POWER AMP 1 A		
	JK102	VV089300	Phone Jack	H30280072N	ホーンコネクタ	POWER AMP 1 B		
*	JK103	VV089300	Phone Jack	H30280072N	ホーンコネクタ	BRIDGE		
*	JK104	VV089300	Phone Jack	H30280072N	ホーンコネクタ	POWER AMP 2 A		
*	JK105	VV089300	Phone Jack	H30280072N	ホーンコネクタ	POWER AMP 2 B		
*								
*		NX818550	Circuit Board	POWER(3/3) PSW	パワースイッチシート	U,C (XS318C0)		
⚠		VY704000	Capacitor	4700P 400V	規格認定コン	U,C,H		
⚠*		VV314800	Capacitor	1000P 400V J.U.C.S	規格認定コン			
⚠*		NX818560	Circuit Board	POWER(3/3) PSW	パワースイッチシート	A,B,H (XS318C0)		
		VV319600	Fuse Holder	CQ-05CT	ヒューズホルダ			
*	F103	VV071700	Fuse	TSD 3.15A 250V SEM	ヒューズ	A,B,H		
*	F103	VV314500	Fuse	SIC(TL) 7.00A JU	ヒューズ	U,C		
	CN103	LB933030	Base Post Connector	VH- 3P SE	ベースポスト	to power trans. primary		01
	CN104	LB933030	Base Post Connector	VH- 3P SE	ベースポスト	to AC cord		01
*	SW101	VV089200	Push Switch	SFDLB11R7U-YL U,C,	プッシュSW	POWER SWITCH		
⚠*		XS167A00	Power Transformer		電源トランス	U,C		
⚠*		XS168A00	Power Transformer		電源トランス	H,B		
⚠*		XS169A00	Power Transformer		電源トランス	A		
⚠		VV205600	AC Cord	SJT 3X#18 10A	電源コード	U,C		
⚠		VV058200	AC Cord	H05VV-F3X0.75 6A	電源コード	A,H		
⚠		VV058300	AC Cord	H05VV-F3X0.75	電源コード	B		

* New Parts (新規部品)

ランク：Japan only

■ OVERALL ASSEMBLY



	REF NO.	PART NO.	DESCRIPTION		部品名	REMARKS	QTY	ランク
			OVERALL ASSEMBLY		総組立	EMX640		
*	10	VV087200	Case Assembly		ボディー集成			
	40	--	Panel Assembly		パネルAss'y	(VV08390)		
	50	EG340360	Bind Head Screw	4.0X8 MFZN2BL	+バインド小ネジ			01
	80	--	Rear Assembly		リアAss'y	U (VV08410)		
	80	--	Rear Assembly		リアAss'y	H (VV08420)		
	80	--	Rear Assembly		リアAss'y	B (VV08430)		
	80	--	Rear Assembly		リアAss'y	A (VV56640)		
	90	EG340360	Bind Head Screw	4.0X8 MFZN2BL	+バインド小ネジ			01
*		VV087200	CASE ASSEMBLY		ボディー集成			
	C10	--	Case		ボディー	(VV08730)		
	C20	--	Carpet		カーペット	(VV43490)		
	C30	--	Shield Sheet		シールド紙	(VV43470)		
*	C40	VV102700	Side Plate	LEFT	サイドプレート（L）			
*	C50	VV102800	Side Plate	RIGHT	サイドプレート（R）			
*	C60	VV086300	Rear Angle		リアアングル			
	C70	EG340110	Bind Head Screw	4.0X16 MFZN2BL	+バインド小ネジ			01
*	C80	VV085400	Handle Assembly		取手Ass'y			
*	C90	VV435200	Oval Head Screw	5.0X35 MFZN2BL	+丸皿小ネジ			
*	C100	VV085500	Corner Protector		コーナー金具			
*	C110	VV085600	Foot		脚			
	C120	EX000950	Truss Head Tapping Screw-1	4.0X12 MFZN2BL	+トラスTP 1種	(03747270)		01
	C130	EH040208	Truss Head Tapping Screw-1	4.0X20 MFZN2BL	+トラスTP 1種	(03747290)		01
		--	PANEL ASSEMBLY		パネルAss'y	(VV08390)		
*	P10	VV085700	Front Panel		フロントパネル			
*	P20	VV084900	Circuit Board	MAIN	メインシート	(XS329B0)		
	P30	VV069200	PCB Support	NEW NIFCO	PCBサポート			
	P40	VV095300	Flat Head Tapping Screw-B	3.0X25 MFZN2BL	+皿Bタイト			
	P50	VU860200	Knob	MX-GREEN/D-GRAY	ノブ（ショウ）	HIGH, MID, LOW		
	P60	VU859700	Knob	N-GRAY/D-GRAY	ノブ（ショウ）	MONI, MASTER, AUX IN, TAPE IN		
	P70	VU860300	Knob	MX-BLUE/D-GRAY	ノブ（ショウ）	EFFECT, EFFECT OUT, EFFECT RTN		
*	P80	VV625800	Knob	ORANGE/D-GRAY	ノブ（ショウ）	LEVEL, MASTER		
	P100	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL	ボンディングBタイト			01
*	P120	VV903200	Cord Binder	KWS-1 KSS	束線止め			
			REAR ASSEMBLY		リアAss'y			
		--	Rear Assembly		リアAss'y	U (VV08410)		
		--	Rear Assembly		リアAss'y	H (VV08420)		
		--	Rear Assembly		リアAss'y	B (VV08430)		
		--	Rear Assembly		リアAss'y	A (VV56640)		
*	R10	VV087400	Rear Panel		リアパネル	U		
*	R10	VV087500	Rear Panel		リアパネル	H,B		
*	R10	VV565700	Rear Panel		リアパネル	A		
*	R20	VV086200	Heat Sink		ヒートシンク			
*	R30	VV435300	Insulation Sheet		放熱シート			
*	R40	VV086500	Support	H=7.4 B=5.5	支柱			
*	R50a	NX818520	Circuit Board	POWER(1/3) AMP	パワーアンプシート	U,C (XS318C0)		
*	R50a	NX818530	Circuit Board	POWER(1/3) AMP	パワーアンプシート	A,B,H (XS318C0)		
*	R50b	NX818540	Circuit Board	POWER(2/3) SP	スピーカ端子シート	(XS318C0)		
*	R50c	NX818550	Circuit Board	POWER(3/3) PSW	パワースイッチシート	U,C (XS318C0)		
*	R50c	NX818560	Circuit Board	POWER(3/3) PSW	パワースイッチシート	A,B,H (XS318C0)		
	R60	EG330290	Bind Head Screw	SP 3.0X8 MFZN2Y	+バインド小ネジ			01
	R70	VB763800	Bind Head Screw	SP 3.0X12 MFZN2Y	+バインド小ネジ			01
	R100	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL	ボンディングBタイト			01
	R110	VU859000	Power Switch Knob		PSWノブ			
⚠*	R130	XS167A00	Power Transformer		電源トランス	U,C		
⚠*	R130	XS168A00	Power Transformer		電源トランス	BH		
⚠*	R130	XS169A00	Power Transformer		電源トランス	A		
	R140	EG340190	Bind Head Tapping Screw-B	4.0X8 MFZN2BL	+バインドBタイト			01
⚠	R150	VV205600	AC Cord	SJT 3X#18 10A	電源コード	U,C		
⚠	R150	VV058200	AC Cord	H05VV-F3X0.75 6A	電源コード	A,H		
⚠	R150	VV058300	AC Cord	H05VV-F3X0.75	電源コード	B		
	R160	VV103100	Cord Strain Relief	SR-6P1	コードストッパー	U		
	R160	VV103000	Cord Strain Relief	SR-5R1	コードストッパー	H,B		
	R170	EG340360	Bind Head Screw	4.0X8 MFZN2BL	+バインド小ネジ			01

* New Parts（新規部品）

ランク：Japan only